N2KView®
Vessel Monitoring and Control Software for N2K™ Networks
User's Manual

Revision 2.6

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1 Introduction

Thank you for purchasing the Maretron N2KView Vessel Monitoring and Control System. The N2KView system enables you to have complete visibility to the state of your vessel from anywhere on your vessel or anywhere in the world with Internet access. This manual guides you through the installation, configuration, and usage of the N2KView system. Please read it carefully and follow the instructions closely when installing, configuring, and using your N2KView System.

2 Software Version

This manual corresponds to N2KView Standard and Platinum Version 2.6 and N2KServer Standard and Platinum Version 2.6

3 Software Editions

Beginning with Version 2.3, the N2KView System is offered in two editions: Standard and Platinum.

The Platinum Edition contains additional functionality over the Standard Edition.

From version 2.5, this additional functionality consists of the following categories

- Video Display
- Fuel Management
- Switch Actuation
- Alerts Management

In version 2.6, the following functionality was added

- The categories for AC parameters have been revised and condensed to 3 to reduce the size of the top level menu entries.
- The Alert Protocol has been changed to match the DSM250.
- Line Graphs have been extended to almost all the parameters, with up to 4 days history being recorded and the short term sampling rate decreased to 1 second. A special depth graph has been created for depth.
- Most controls have been extended by adding min max markers that can be reset from the screen without having to go into the configuration dialog.
- Anchor watch alert and control has been added.
- Negative values may now be entered for temperature alerts.

You may mix Standard and Platinum Edition N2KView clients. For example, you may originally purchase a Platinum Edition N2KView and N2KServer, and then later decide to add a Standard Edition N2KView client as a second client license. If you do this, then the Platinum Edition features will be available only on one of the two clients (you may decide which feature set to use at connection time). However, in order to fully utilize all of the Platinum Edition features on an N2KView client, you must also purchase a Platinum Edition N2KServer license. If you originally purchase a Standard Edition N2KView and N2KServer, and then later decide to add a Platinum Edition N2KView client, you must also upgrade your N2KServer license from Standard Edition to Platinum Edition in order to utilize the Platinum Edition features.

All copies of N2KView software of Version 2.2 and prior will automatically convert to Platinum Edition when Version 2.3 or later is installed.

4 Prerequisites

4.1 N2KView

The following requirements must be met in order to successfully run N2KView:

- Operating System: Windows XP Home Edition/Professional, or Microsoft Vista (32-bit)
- CPU: Minimum Pentium® 4 or Equivalent, Recommended Pentium® 4, 3.0 GHz
- Memory: Minimum 512 MB RAM, Recommended 1 GB RAM on Windows XP and 2GB RAM on Windows Vista.
- Hard Drive Space: 40 MB
- CD-ROM or DVD Drive
- Video Card: Minimum 128 MB memory, Recommended 256 MB. N2KView is a graphics intensive program which will allow more complex screen layouts with high power graphics engines.
- Network Connection: 10BASE-T or 100BASE-TX, or 802.11a/b/g
- Display: Minimum 1024x768 Resolution, 32-Bit Color Video
- Multiple Monitor Support: Dedicated Video Cards with Minimum 64 MB memory per monitor
- Touch Screen or Mouse with Windows Compatible Driver
- Keyboard (for assigning user-defined titles to components, entering passwords and connection information)

4.2 N2KServer

The following requirements must be met in order to successfully run N2KServer:

- Operating System: Windows XP Home Edition/Professional, or Microsoft Vista (32-bit)
- CPU: Minimum Pentium® 4 or Equivalent, Recommended Pentium® 4, 3.0 GHz
- Memory: Minimum 512 MB RAM, Recommended 1 GB RAM

- Hard Drive Space: 40 MB
- CD-ROM or DVD Drive
- Video Card: Minimum 128 MB memory, Recommended 256 MB
- USB Ports: Two 1.1 or 2.0 compatible ports
- Network Connection: 10BASE-T or 100BASE-TX, or 802.11a/b/g
- A NMEA 2000 gateway Currently, compatible gateways include the following:
    - Maretron USB100 with firmware revision 1.7.1 or greater (contact Maretron for any necessary firmware updates) with a Maretron USB100 Windows driver dated 8/3/2007, version 1.0.0.0, or a more recent revision. This version of the driver is installed by default by the Maretron N2KServer Setup Wizard, but you may need to manually update the USB100 driver using the Windows Device Manager in order to use the updated driver if you are using a NMEA 2000 gateway you installed previously to installing N2KServer. N2KServer can operate with earlier versions of USB100 drivers, but will not automatically recover when NMEA 2000 power is lost or when the USB gateway is unplugged from the computer and then plugged in again.
- Mouse
- Keyboard

5 N2KView System Features

- Provides monitoring of a wide variety of NMEA 2000 data (see section 8.6 for a complete list of available data types):
  - AC Bus Parameters (Average and Phase specific)
  - AC Generator Parameters (Average and Phase specific)
  - AC Utility Parameters (Average and Phase specific)
  - Anchor Watch
  - DC Power
  - Depth
  - Electrical Distribution
  - Engine
  - Engine Warning
  - Environment
  - Fuel Management (Platinum Edition only)
  - GPS
  - Heading
  - Indicators
  - Navigation
  - Rudder
  - Speed/Distance
  - Switch Actuator (Platinum Edition only)
  - Switch Indicator
  - Tank
  - Text
  - Time/Date
  - Transmission
  - Transmission Warning
  - Vessel
  - Video (Platinum Edition only)
  - Wind

- Provides ability to control compatible NMEA 2000 switches and circuit breakers (Platinum Edition only).

- Client/Server architecture allows monitoring from anywhere in the world with an internet connection.

- Provides ability to monitor a wide variety of NMEA 2000 data for alert conditions, and to perform one or more of the following actions when an alert condition is met
  - Display the alert on any or all N2KView Screens connected to an N2KView Server on the NMEA 2000 network. This includes N2KView clients connected remotely through an Internet connection.
  - Sound one or more Annunciators connected to the NMEA 2000 network.
  - Email the alert details to one or more email addresses, including cell phones.

- SSL Encryption with password protection for security against eavesdropping.

- Password protected configuration files

- Password protected server login

- Gauge components with programmable warning and fault ranges

- Digital components with programmable warning and fault ranges

- Unlimited number of user-configurable favorites screens
  - User graphics and pictures may be added to any screen as a background
  - Individual screen layouts may be imported and exported to other copies of N2KView.

6 Quick Install

This section will help you install the software for the first time and get it running as quickly as possible with basic settings.

6.1 Unpack the Box

The N2KView System is sold in two configurations:

1) N2KServer and N2KView
    a. N2KServer Software CD-ROM
        i. Installer for N2KServer
        ii. Installer for Adobe Acrobat Reader
        iii. N2KServer Quick Install Guide PDF file
        iv. N2KView System User's Manual PDF file
    b. N2KView System Hardware License Key
    c. N2KServer Quick Setup Guide
2) N2KView only
    a. N2KView Software CD-ROM
        i. Installer for N2KView
        ii. Installer for Adobe Acrobat Reader
        iii. N2KView Quick Install Guide PDF file
        iv. N2KView System User's Manual PDF file
    b. N2KView Quick Setup Guide

6.2 Install N2KServer

NOTE: Since the N2KServer Setup Wizard installs device drivers for the Hardware License Key and the NMEA 2000 gateway, the setup wizard must be run from an account with administrator privileges, as those privileges are required by Windows in order to install device drivers.

a. Insert the N2KServer CD-ROM into your computer's CD-ROM drive.

b. The installer will automatically start unless you have disabled AutoPlay on the CD-ROM drive. If this is the case, double-click on the CD-ROM drive in Windows Explorer to start the installer. The Welcome screen will be shown next. Please press "**Next >**" to continue the installation.

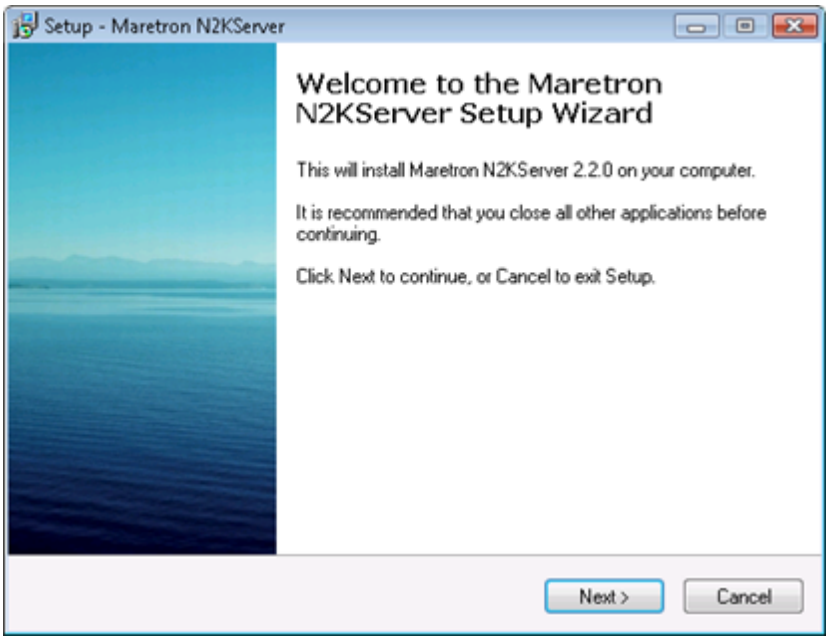

Setup - Maretron N2KServer
Welcome to the Maretron N2KServer Setup Wizard
This will install Maretron N2KServer 2.2.0 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 1 – Maretron N2KServer Setup Wizard Welcome Page

c. The "**License Agreement**" screen will be shown next. Please read the license agreement carefully. If you agree with the terms of the license agreement, please select "**I accept the agreement**" and then click "**Next >**" to continue the installation. If you select "**I do not accept the agreement**", the installer will terminate without installing the software.

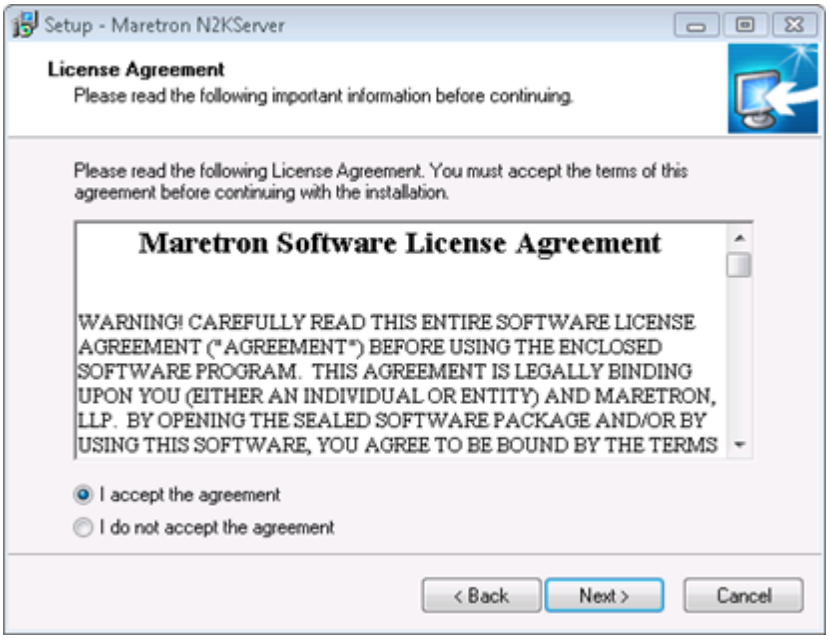

Setup - Maretron N2KServer
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Maretron Software License Agreement
WARNING! CAREFULLY READ THIS ENTIRE SOFTWARE LICENSE AGREEMENT ("AGREEMENT") BEFORE USING THE ENCLOSED SOFTWARE PROGRAM. THIS AGREEMENT IS LEGALLY BINDING UPON YOU (EITHER AN INDIVIDUAL OR ENTITY) AND MARETRON, LLP. BY OPENING THE SEALED SOFTWARE PACKAGE AND/OR BY USING THIS SOFTWARE, YOU AGREE TO BE BOUND BY THE TERMS
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

Figure 2 – N2KServer Installation Wizard License Agreement Page

d. The "**Select Start Menu Folder**" screen appears next. If you wish to change the name of the start menu folder from the default shown, enter it in the text box. Click "**Next**" to continue.

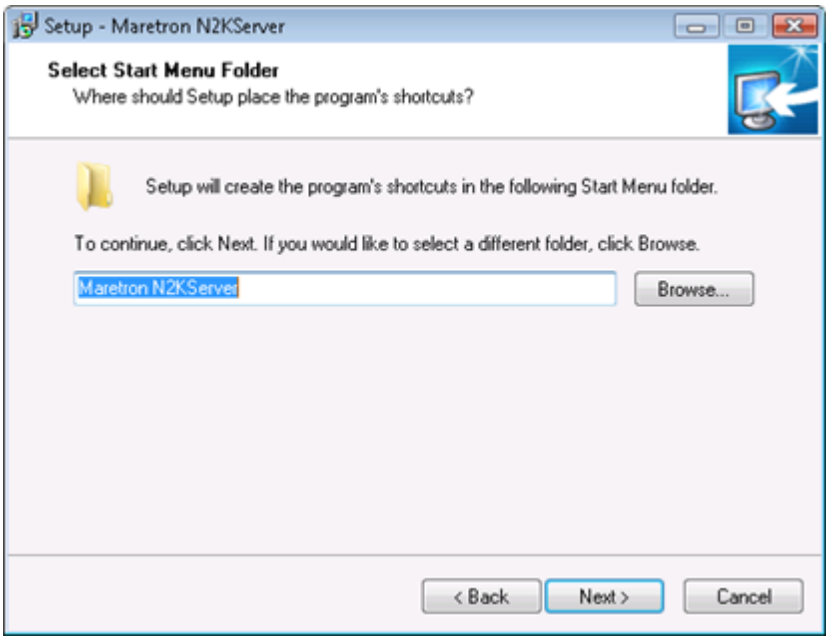

Setup - Maretron N2KServer
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Maretron N2KServer
Browse...
< Back
Next >
Cancel

Figure 3 – N2KServer Installation Wizard Select Start Menu Folder Page

e. The "**Select Destination Location**" screen will display next. If you wish to install to a different location from the default shown, enter it in the text box or click the "**Browse…**" button to navigate to your desired installation directory. Click "**Next**" to continue.

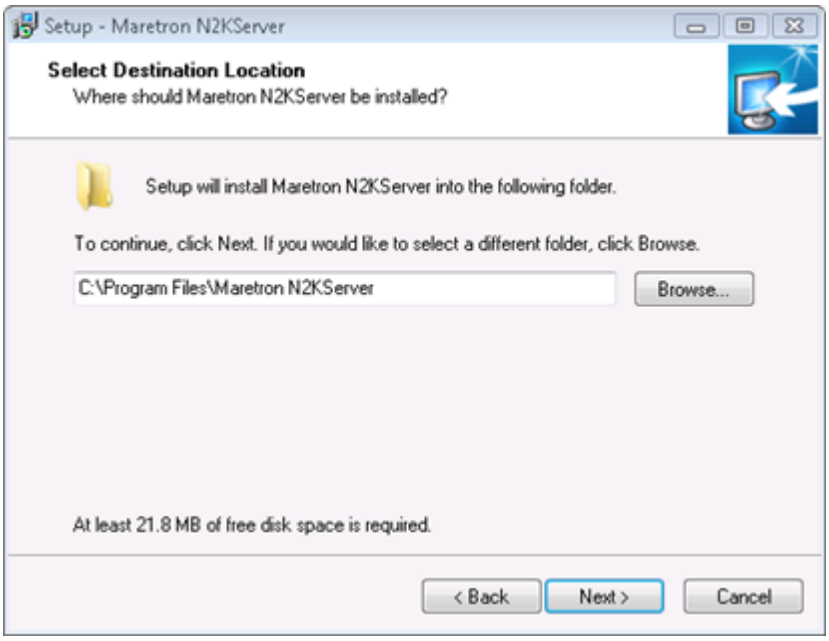

Setup - Maretron N2KServer
Select Destination Location
Where should Maretron N2KServer be installed?
Setup will install Maretron N2KServer into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\Maretron N2KServer
Browse...
At least 21.8 MB of free disk space is required.
< Back
Next >
Cancel

Figure 4 – Select Destination Location Page

f. The "**Select Additional Tasks**" screen will display next. Select the appropriate checkboxes to install shortcuts for the program on the desktop or the quick launch bar. Click "**Next >**" to continue.

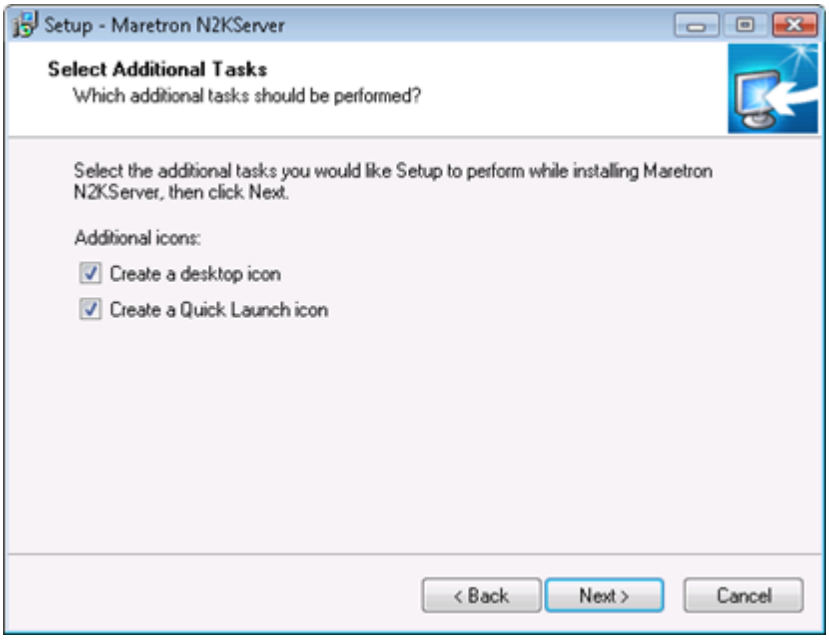

Setup - Maretron N2KServer
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Maretron N2KServer, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Next >
Cancel

Figure 5 – N2KServer Installation Wizard Select Additional Tasks Page

g. The "**Ready to Install**" screen will display next. Please verify that all the information on this screen is as desired. Click "**Next >**" to continue.

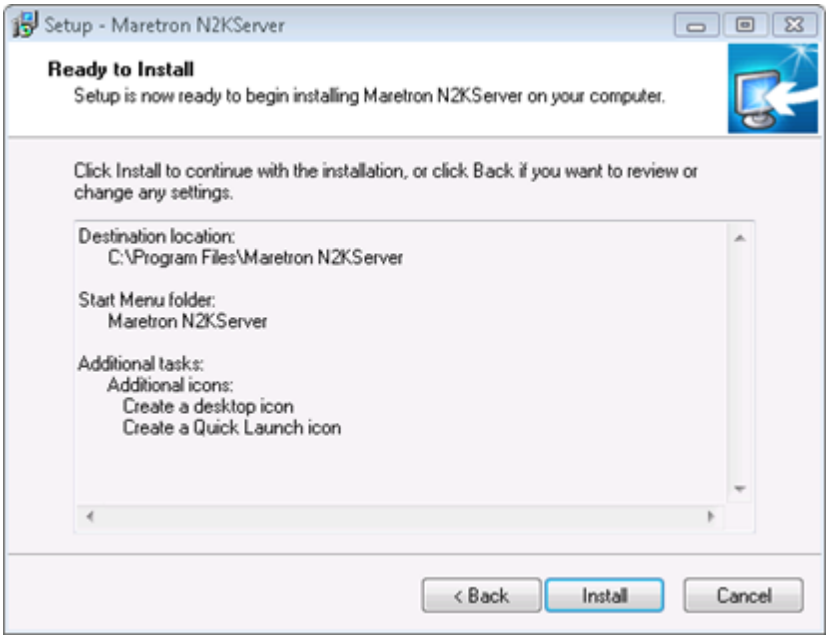

Setup - Maretron N2KServer
Ready to Install
Setup is now ready to begin installing Maretron N2KServer on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\Maretron N2KServer
Start Menu folder:
Maretron N2KServer
Additional tasks:
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Install
Cancel

Figure 6 – N2KServer Installation Wizard Ready to Install Page

h. The "**Installing**" screen will display next, and will show the progress of the installation.

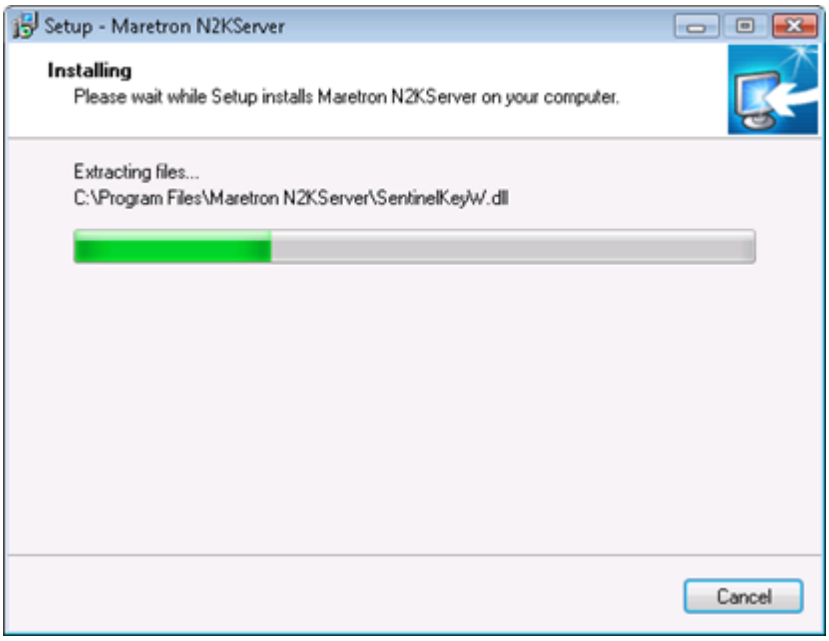


Figure 7 – N2KServer Installation Wizard Installing Page

i. The “**Hardware Setup**” screen will display next. Please follow the instructions and plug the red Hardware License Key (dongle) into an available USB port. Also, plug your Maretron NMEA 2000 gateway into an available USB port. Wait for Windows to indicate that these devices are both ready to use. Click “**Next >**“ to continue.

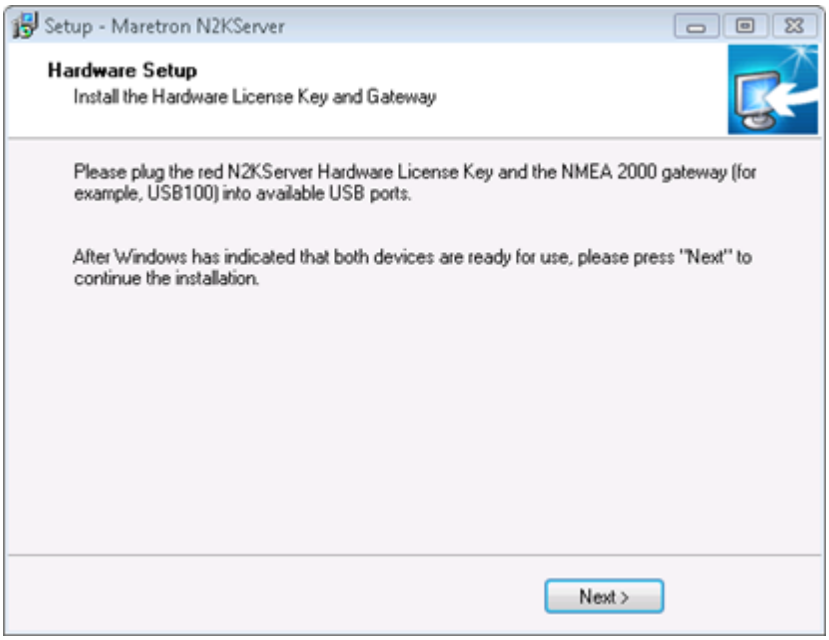

Setup - Maretron N2KServer
Hardware Setup
Install the Hardware License Key and Gateway
Please plug the red N2KServer Hardware License Key and the NMEA 2000 gateway (for example, USB100) into available USB ports.
After Windows has indicated that both devices are ready for use, please press "Next" to continue the installation.
Next >

Figure 8 – N2KServer Installation Wizard Hardware Setup Page

j. The “**Passwords**” screen will display next. You must choose a password for N2KServer. This will allow only your N2KView programs with the same password to view your network data. Please choose a password and save it in a safe place. The password cannot be recovered from N2KServer, so if you misplace or forget this password, you will need to reset it. Click “**Next >**“ to continue.

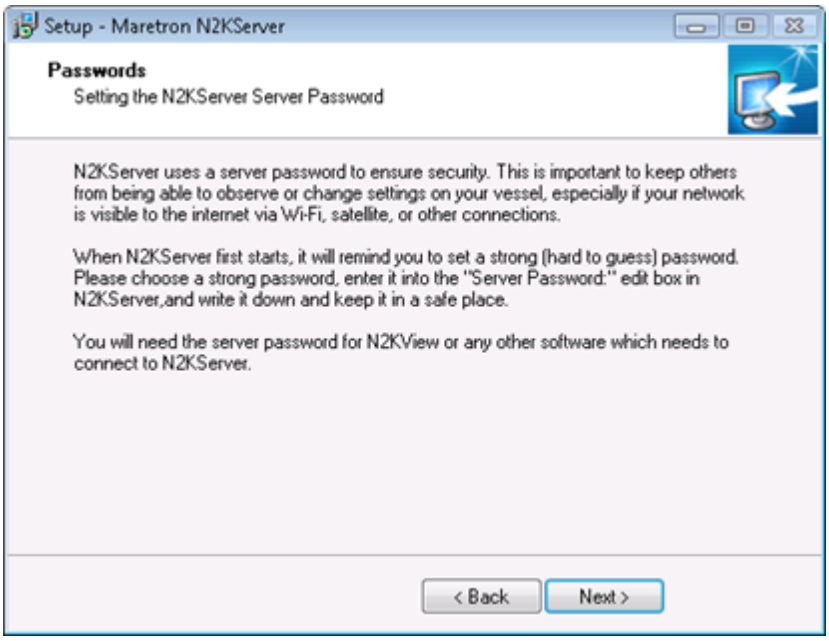

Setup - Maretron N2KServer
Passwords
Setting the N2KServer Server Password
N2KServer uses a server password to ensure security. This is important to keep others from being able to observe or change settings on your vessel, especially if your network is visible to the internet via Wi-Fi, satellite, or other connections.
When N2KServer first starts, it will remind you to set a strong (hard to guess) password. Please choose a strong password, enter it into the "Server Password:" edit box in N2KServer,and write it down and keep it in a safe place.
You will need the server password for N2KView or any other software which needs to connect to N2KServer.
< Back
Next >

Figure 9 – N2KServer Installation Wizard Passwords Page

The installation is now complete. If you wish to configure the N2KServer software at this time, select the "**Run N2KServer Service Manager**" checkbox. You also have the opportunity to register your software at this time. Please make sure to register your software in order to qualify for technical assistance.

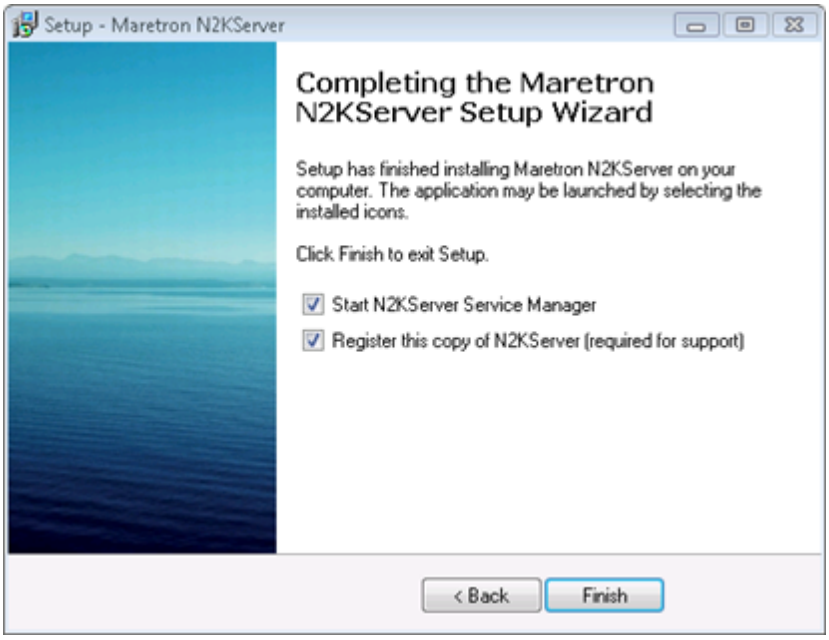

Setup - Maretron N2KServer
Completing the Maretron N2KServer Setup Wizard
Setup has finished installing Maretron N2KServer on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Start N2KServer Service Manager
Register this copy of N2KServer (required for support)
< Back
Finish

Figure 10 – N2KServer Installation Wizard Completion Page

6.3 Run N2KServer

Note: Before running N2KServer, please make sure your USB gateway is connected to a USB port on your computer and also to a powered NMEA 2000 network.

The *N2KServer Service Manager* program is used to start, stop, and configure N2KServer. The service manager's dialog box, shown below, has the following sections:

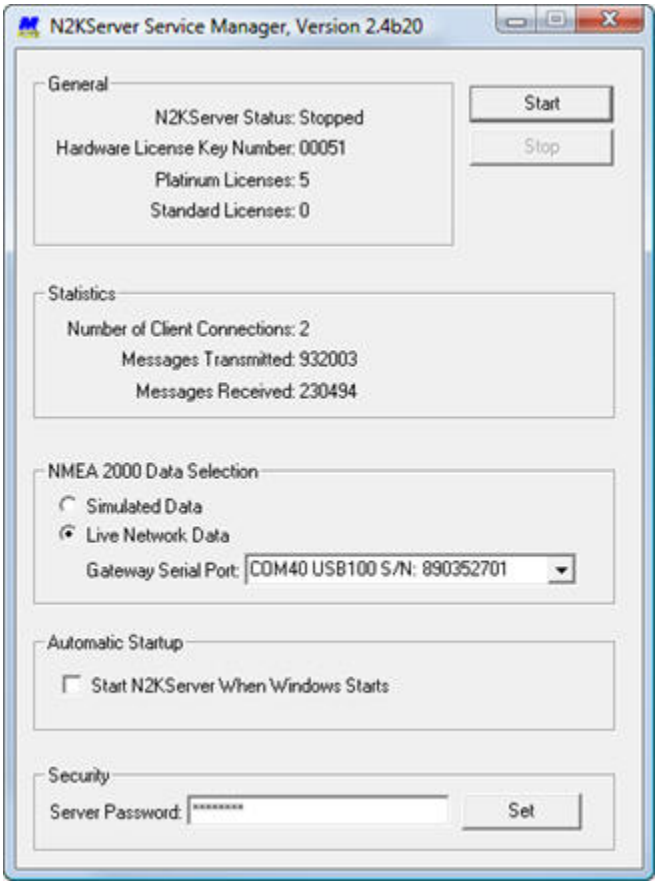


Figure 11 – N2KServer Service Manager Window

General: This section shows whether the N2KServer is running, as well as the serial number of the N2KServer Hardware License Key (dongle). It also shows how many Platinum and Standard clients are licensed on the N2KServer Hardware License Key.

Statistics: This section shows the number of N2KView clients currently connected, as well as the number of messages transmitted to and received from the clients. The "**Start**" button is used to start the N2KServer, and the "**Stop**" button is used to stop the N2KServer.

NMEA 2000 Data Selection: There are two choices for data: "**Simulated Data**" is only to be used for product demonstration and testing of network connectivity. The N2KServer will output a sequence of simulated NMEA 2000 messages that repeats every few minutes. "**Live Network Data**", the normal operating mode, causes the N2KServer to output data from the NMEA 2000 gateway which is selected in the "**Gateway Serial Port**" dropdown list. If this list is empty, please ensure that the USB gateway is connected.

Automatic Startup: If the "**Start N2KServer When Windows Starts**" box is checked, then N2KServer will run whenever the computer is turned on, regardless of whether anyone has logged in to the computer. If this box is cleared, then you must manually start the N2KServer Service Manager and click the "**Start**" button in order to start the N2KServer.

Security: You must enter a password into the "**Server Password**" text box, and then click "**Set**", to ensure that only your N2KView software (which must be programmed with the same password) can view your network data.

Steps to configure and start N2KServer the first time:

1. Click the "**Live Network Data**" radio button.
2. Select an NMEA 2000 gateway from the "**Gateway Serial Port**" dropdown list.
3. Check the "**Start N2KServer When Windows Starts**" checkbox.
4. Select a password and enter it into the "**Server Password**" text box, then click the "**Set**" button.
5. Click the "**Start**" button.

N2KServer is now ready to accept connections and send NMEA 2000 data to N2KView clients on the network. Note the IP address of this computer and proceed with N2KView installation.

6.4 Install N2KView

NOTE: Since the N2KView Setup Wizard installs device drivers for the video connections, the setup wizard must be run from an account with administrator privileges, as those privileges are required by Windows in order to install device drivers.

Please follow the following steps to install the N2KView client part of the N2KView system.

a. Insert the N2KView CD-ROM into your computer's CD-ROM drive.

b. The installer will automatically start unless you have disabled AutoPlay on the CD-ROM drive. If this is the case, double-click on the CD-ROM drive in Windows Explorer to start the installer. The Welcome screen will be shown next. Please press "**Next >**" to continue the installation.

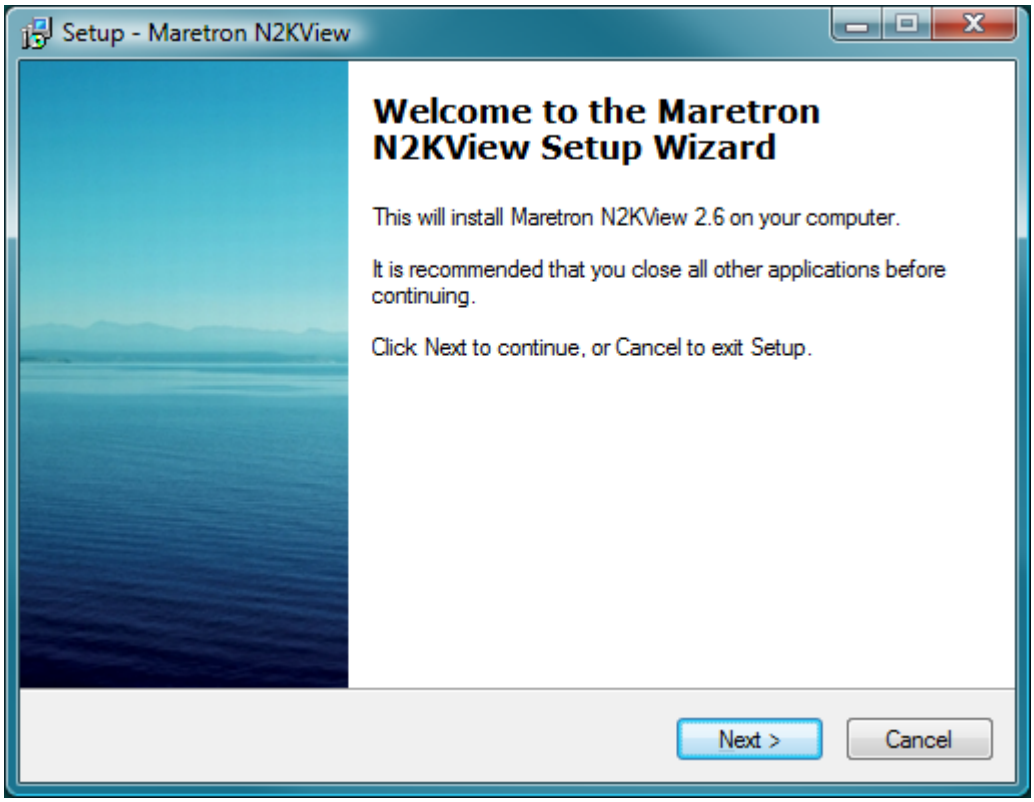

Setup - Maretron N2KView
Welcome to the Maretron N2KView Setup Wizard
This will install Maretron N2KView 2.6 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 12 – N2KView Installation Wizard Welcome Page

c. The “License Agreement” screen will be shown next. Please read the license agreement carefully. If you agree with the terms of the license agreement, please select “**I accept the agreement**” and then click “**Next >**“ to continue the installation. If you select “**I do not accept the agreement**”, the installer will terminate without installing the software.

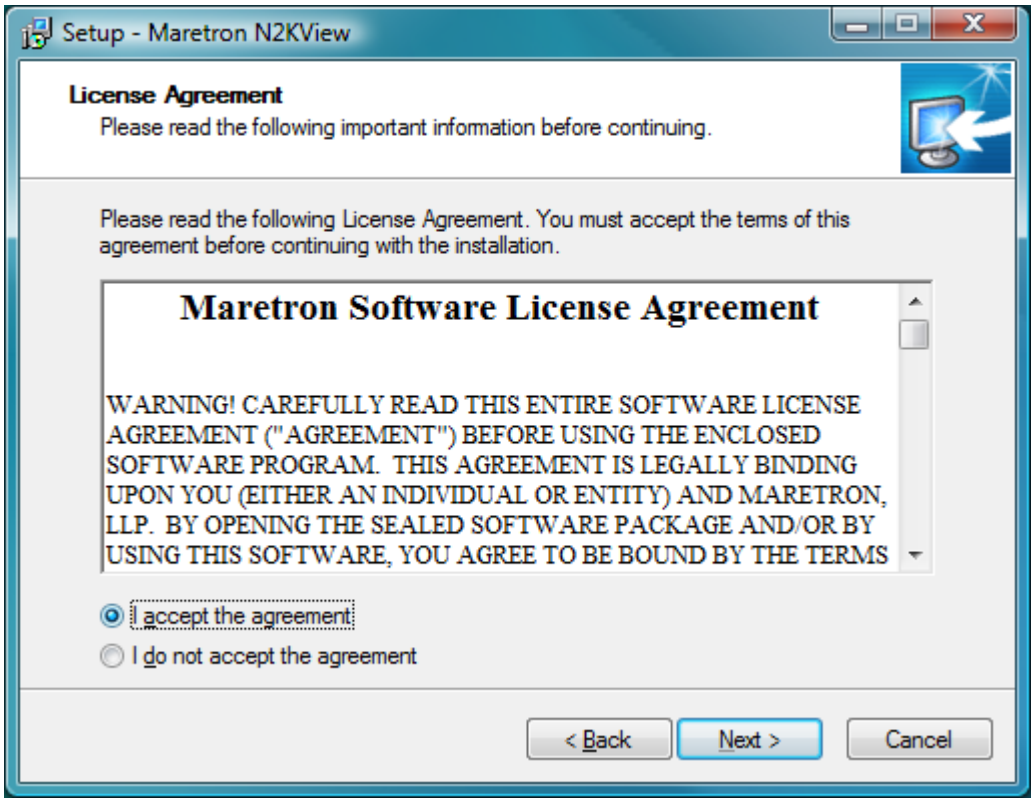

Setup - Maretron N2KView
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Maretron Software License Agreement
WARNING! CAREFULLY READ THIS ENTIRE SOFTWARE LICENSE AGREEMENT ("AGREEMENT") BEFORE USING THE ENCLOSED SOFTWARE PROGRAM. THIS AGREEMENT IS LEGALLY BINDING UPON YOU (EITHER AN INDIVIDUAL OR ENTITY) AND MARETRON, LLP. BY OPENING THE SEALED SOFTWARE PACKAGE AND/OR BY USING THIS SOFTWARE, YOU AGREE TO BE BOUND BY THE TERMS
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

Figure 13 – N2KView Installation Wizard License Agreement Page

d. The "**Select Destination Location**" screen will display next. If you wish to install to a different location from the default shown, enter it in the text box or click the "Browse…" button to navigate to your desired installation directory. Click "**Next >**" to continue.

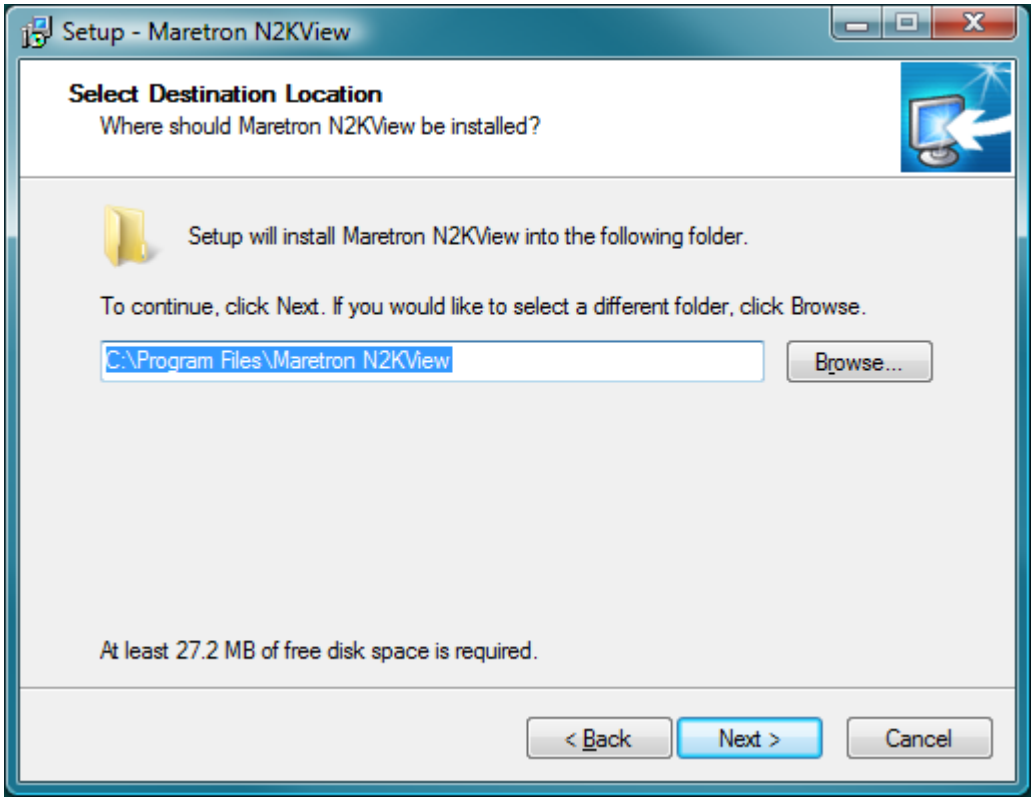

Setup - Maretron N2KView
Select Destination Location
Where should Maretron N2KView be installed?
Setup will install Maretron N2KView into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\Maretron N2KView
Browse...
At least 27.2 MB of free disk space is required.
< Back
Next >
Cancel

Figure 14 – N2KView Installation Wizard Select Destination Location Page

k. The “**Select Start Menu Folder**” screen appears next. If you wish to change the name of the start menu folder from the default shown, enter it in the text box. Click “**Next**“ to continue.

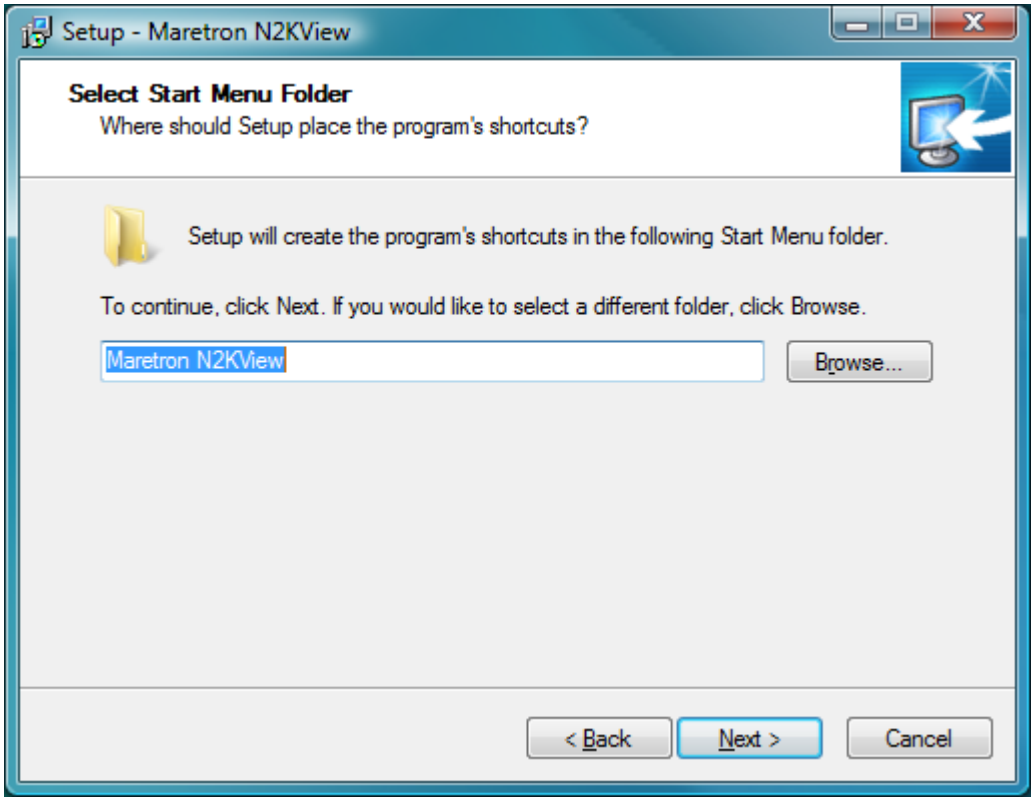

Setup - Maretron N2KView
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Maretron N2KView
Browse...
< Back
Next >
Cancel

Figure 15 – N2KView Installation Wizard Select Start Menu Folder Page

e. The “Select Additional Tasks” screen will display next. Select the appropriate checkboxes to install shortcuts for the program on the desktop or the quick launch bar. Click “**Next >**“ to continue.

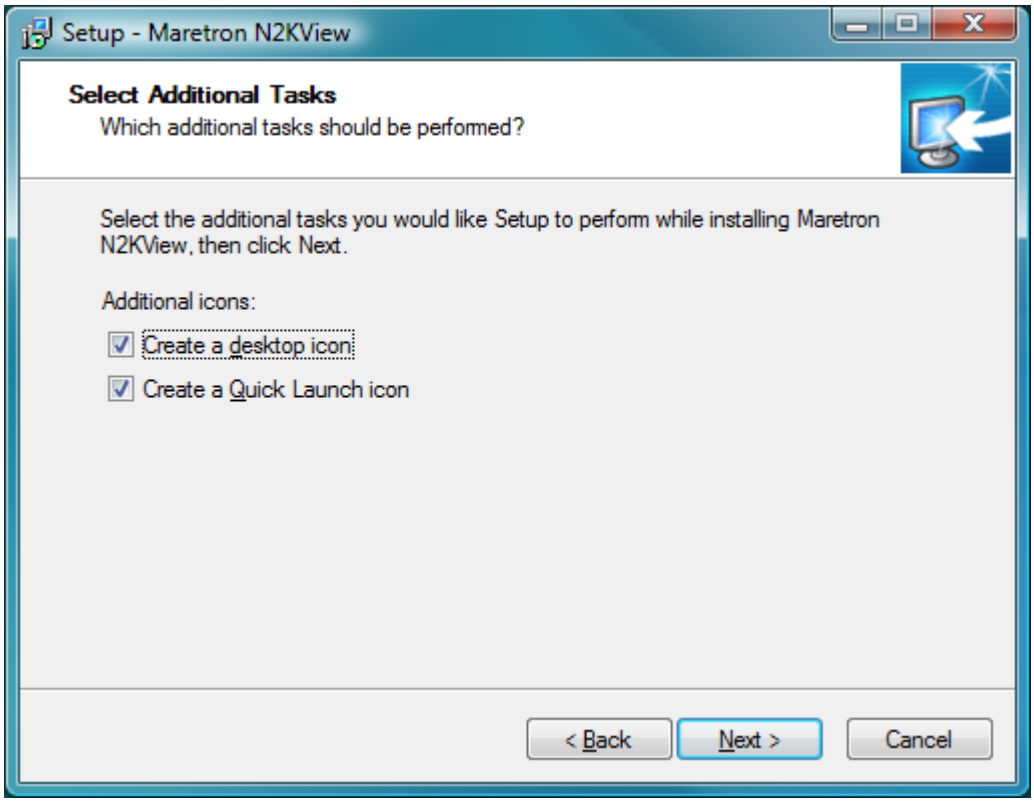

Setup - Maretron N2KView
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Maretron N2KView, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Next >
Cancel

Figure 16 – N2KView Installation Wizard Select Additional Tasks Page

f. The "**Ready to Install**" screen will display next. Please verify that all the information on this screen is as desired. Click "**Next >**" to continue.

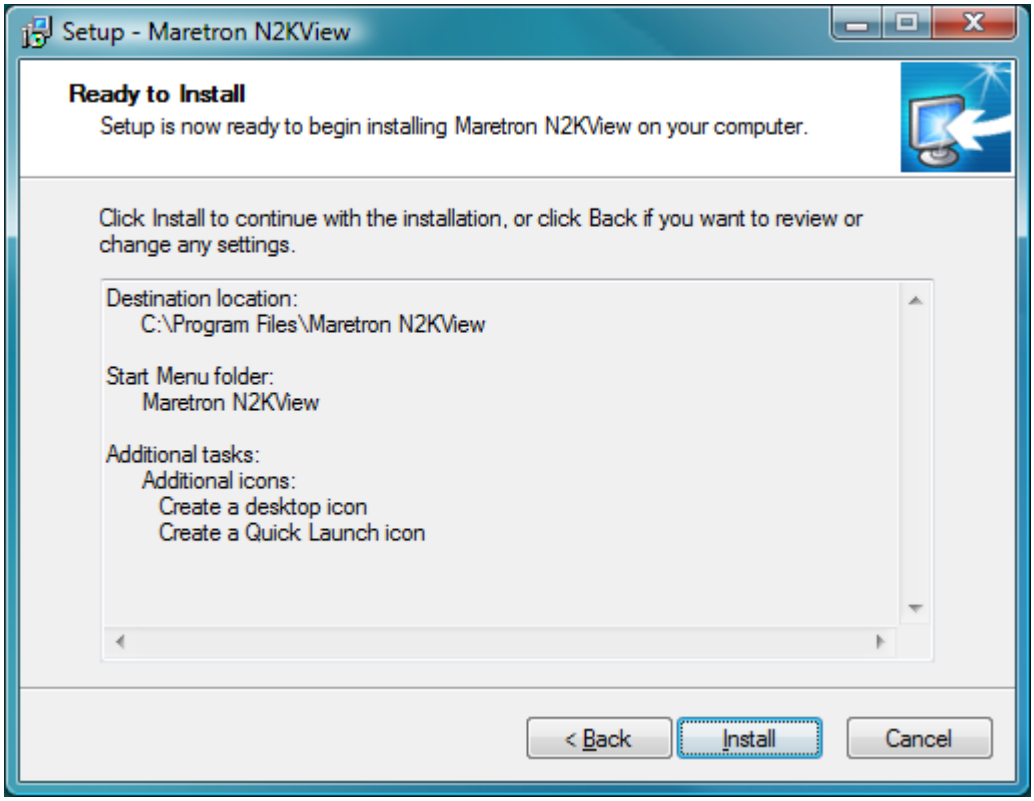

Setup - Maretron N2KView
Ready to Install
Setup is now ready to begin installing Maretron N2KView on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\Maretron N2KView
Start Menu folder:
Maretron N2KView
Additional tasks:
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Install
Cancel

Figure 17 – N2KView Installation Wizard Ready to Install Page

g. The "**Installing**" screen will display next, and will show the progress of the installation.

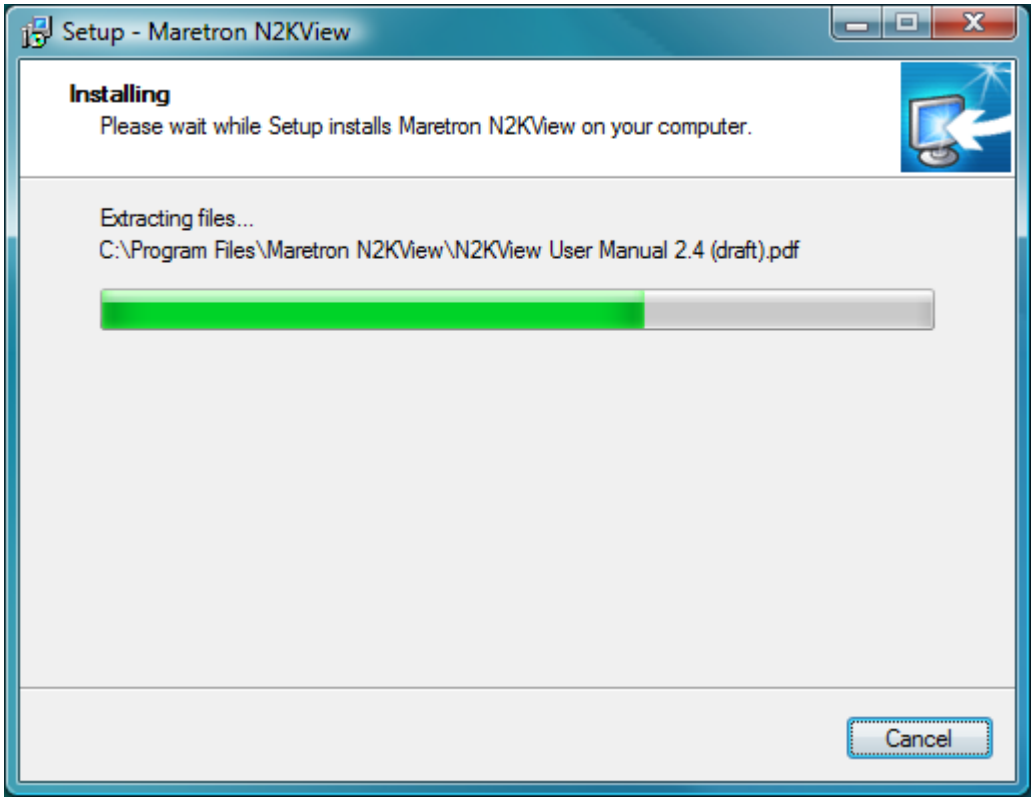

Setup - Maretron N2KView
Installing
Please wait while Setup installs Maretron N2KView on your computer.
Extracting files...
C:\Program Files\Maretron N2KView\N2KView User Manual 2.4 (draft).pdf
Cancel

Figure 18 – N2KView Installation Wizard Installing Page

h. The Axis Media Control SDK will be installed next. Press Next> to continue.

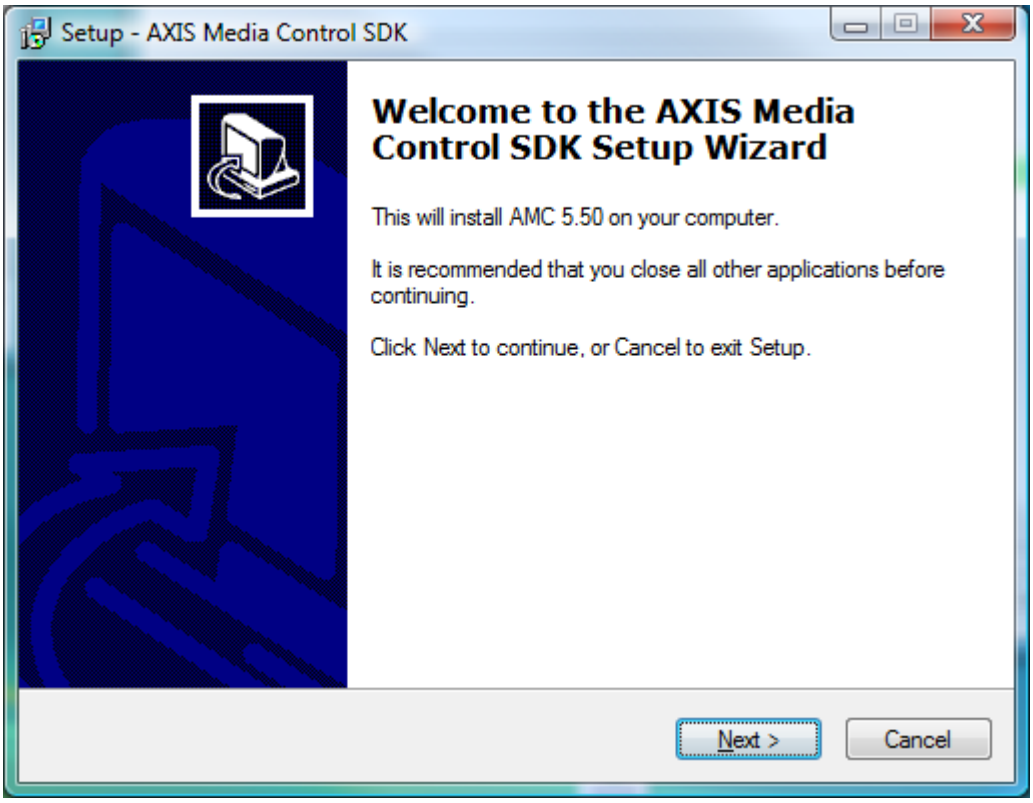

Setup - AXIS Media Control SDK
Welcome to the AXIS Media Control SDK Setup Wizard
This will install AMC 5.50 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 19 – Axis Media Control Setup Screen

i. The installation is now complete. To run the N2KView software, click on the N2KView icon in the Start Menu, desktop, or Quick Launch bar. You have the opportunity to register your software at this time. Please make sure to register your software in order to qualify for technical assistance.

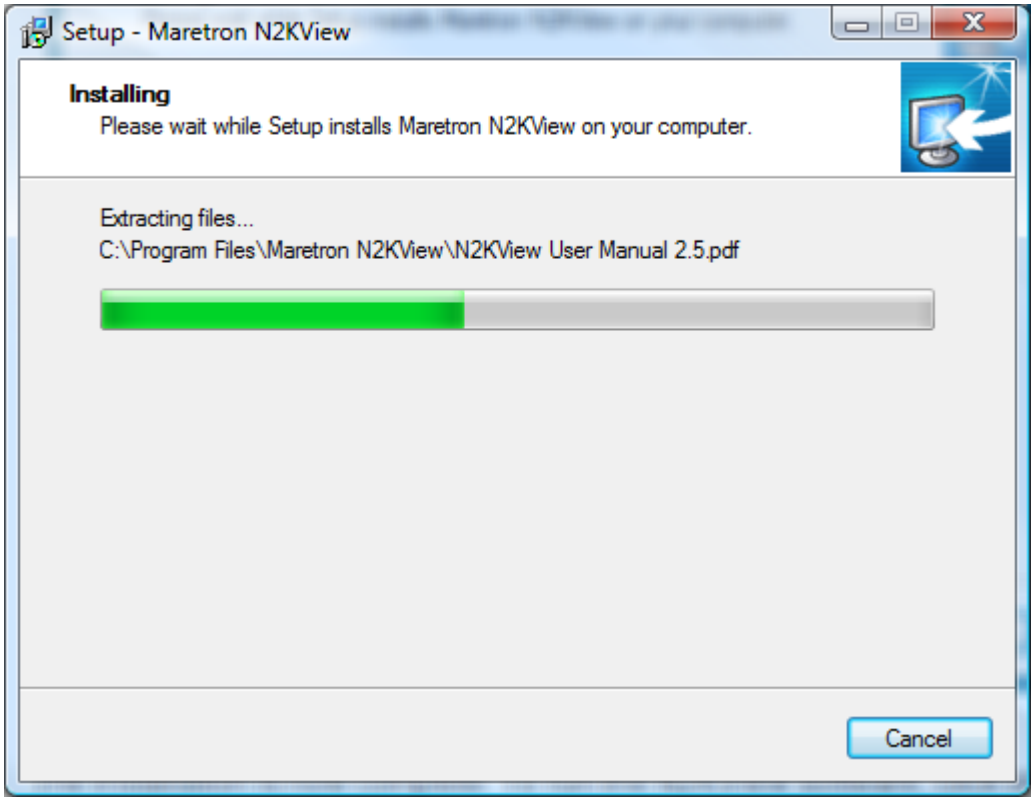

Setup - Maretron N2KView
Installing
Please wait while Setup installs Maretron N2KView on your computer.
Extracting files...
C:\Program Files\Maretron N2KView\N2KView User Manual 2.5.pdf
Cancel

Figure 20 – Maretron N2KView Installation Wizard Completion Page

6.4.1 Installing Cameras

N2KView is designed to display data from IP cameras produced by AXIS Communications. The cameras are connected to the computer running N2KView via Ethernet. The following cameras are currently supported:

- Axis 209FD-R Network Camera. This is a low-profile camera powered over the Ethernet cable.
- Axis 212 PTZ Network Camera. This is a wall-mounted camera with software pan Tilt and Zoom.
- Axis 215 PTZ Network Camera. This is a sophisticated camera with hardware Pan Tilt and Zoom. It requires a 12V power supply which is supplied with the camera.
- Axis P3301 Fixed Dome Network Camera
- Axis Single Video Server 241S
- Axis Quad Video Server 241Q
- USB Camera (limited functionality)

The two video servers allow the connection of analog cameras to the video server using co-axial cable, which then serves the video to N2KView via Ethernet. The cameras require a separate 12V power supply.

Connection of IP cameras requires knowledge of computer networks to allocate an address to the cameras. The camera is identified by N2KView by this address (see 7.4 for more information). In simple networks, this address (the IP address) can be permanently set inside the camera; in more complex networks a server can dynamically allocate the IP address to the camera, and the camera addressed though it's name.. The software and installation manual supplied by Axis Communications must be used to set up the camera's address.

Section 15 gives a step-by-step example of setting up the Axis Quad Video Server 241Q.

6.5 Run N2KView

Note: Before running N2KView, please make sure N2KServer is running either on the same computer or on a different computer whose IP address is accessible from this computer.

N2KView will start up with the following warning screen.

N2KView Demo
Warning
Maretron®
N2KView - Vessel Monitoring and Control System
Software Version - 2.6.0 build 20090904
WARNING: By pressing "Accept", you acknowledge that while Maretron products are designed to be accurate and reliable, they should be used only as aids to navigation and vessel monitoring and not as a replacement for traditional aids and techniques.
Exit
Accept

You are required to press Accept and thereby acknowledge this warning message before N2KView will run.

The first time you run N2KView, you must configure the connection to enable N2KView to receive information from an instance of N2KServer. This is done through the following steps:

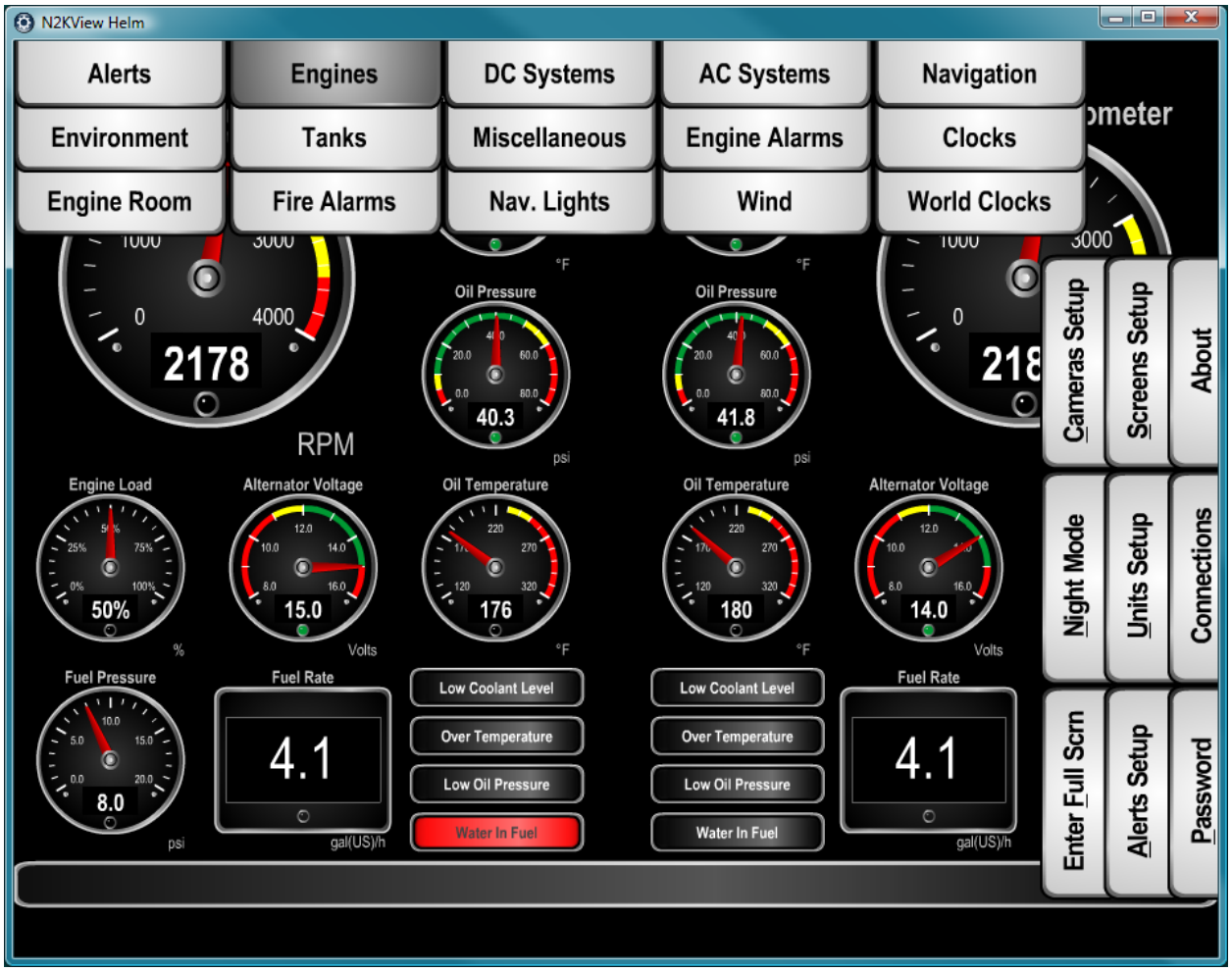


Figure 21 – N2KView Window with Tabs Displayed

a. Click anywhere inside the N2KView screen to display the screen tabs as shown in Figure 21 above.

b. Click on the "**Connections**" screen tab on the right side of the N2KView screen to display the Connections Settings dialog.

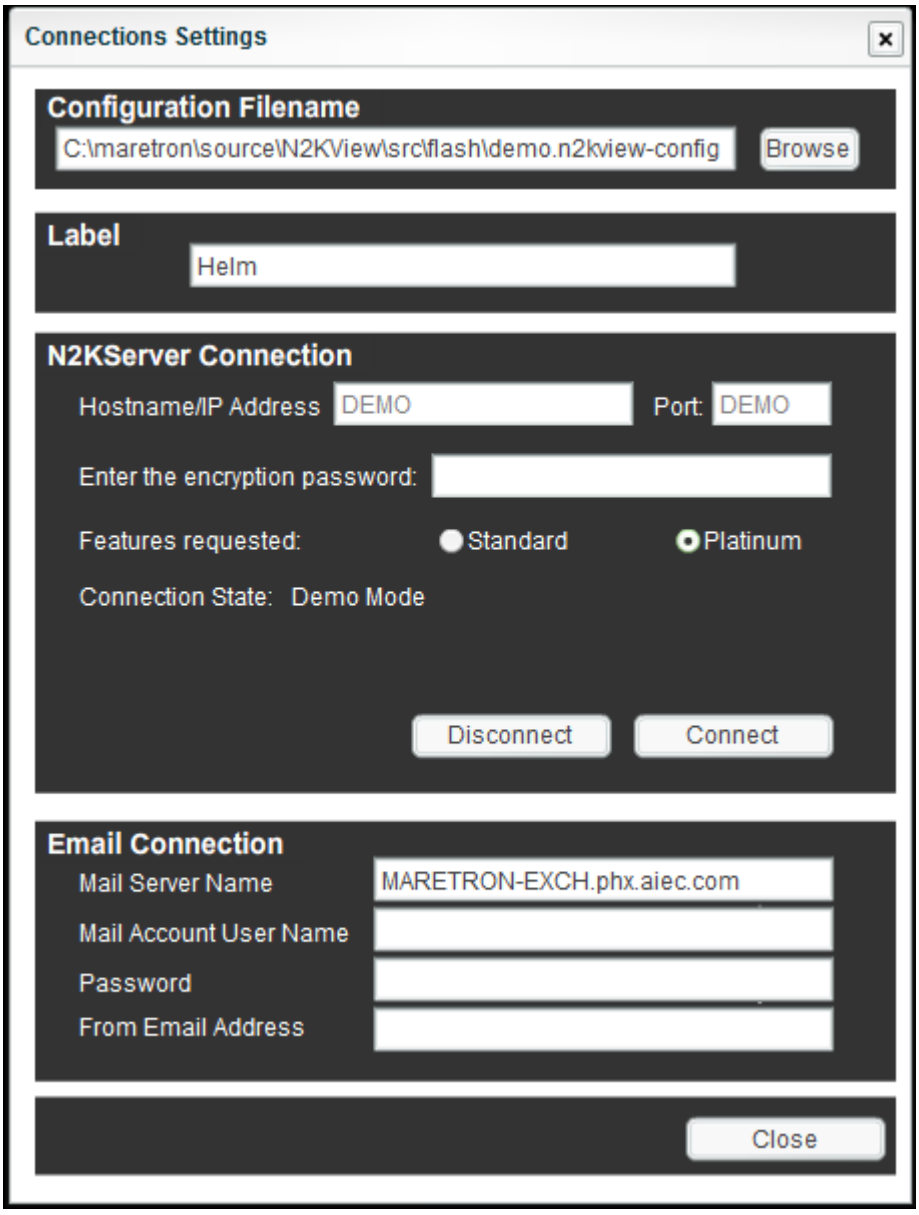


Figure 22 – Connections Settings Dialog

c. In the "Hostname **/ IP Address:**" text box, enter the IP address of the computer running N2KServer. If N2KServer is running on this computer, leave at the initial setting of "127.0.0.1".

d. Leave the "**Port:**" setting at the initial value of "6544".

e. In the "**Enter the encryption password**" text box, enter the same server password that you entered into the *N2KServer Service Manager*.

f. If you have purchased the Platinum Edition of N2KView and wish to use all of the Platinum Edition features, select “Platinum” from “Features Requested:”. If you have purchased the Standard Edition of N2KView or you wish to use only the Standard Edition subset of features of N2KView (leaving the Platinum Edition features available for another copy of N2KView), select “Standard” from “Features Requested:”.

g. Click “**Connect**”. The “Connection State:” part of the window will blink “Connecting…” for a few seconds. It will then either display “Connected.” if the connection was successfully made, or display a message indicating that the connection was not made and suggesting further action to take.

If no data is displayed, please check the following:

1. Make sure the “**Server Password**” entered in N2KView matches the “**Server Password**” entered into the N2KServer Service Manager on the computer running N2KServer.

2. Make sure the “**Server Address**” matches the IP address of the computer running N2KServer.

3. Make sure you have appropriate instruments on the NMEA 2000 network to provide the data you are trying to view on the N2KView screen. (To test the network connection between N2KView and the N2KServer, you may wish to run N2KServer in “**Simulated Data**” mode.)

4. Make sure that the instances that are being monitored correspond to the instances being transmitted. You can set the instance number of the component to “Any” to make sure that there is any data of that type on the bus.

Along the top of the screen are tabs to allow you to access the screens you have defined, as well as the Alerts Screen. Click on a screen tab to display the corresponding screen. Use the left and right arrow keys to cycle between the different user-defined screens. The tab corresponding to the currently displayed screen is a shade darker than the other tabs.

Alerts: This is always the top leftmost tab, and will be semi-transparent if the Alerts feature is not licensed.

Along the right-hand side of the screen are the standard screen tabs:

Night Mode: Switches N2KView in and out of Night Mode (you may also use the ctrl-“N” key)

Alerts Setup: This tab allows you to change the **Alert Operating Mode,** to enter new alerts, to delete alerts, and to edit alert details. (Platinum Only)

Cameras Setup: This tab allows you to change the names, cameras types and IP addresses of the Cameras that can be monitored by N2KView. (Platinum Only)

Screens Setup: This tab allows you to change, add, or delete user-defined screens.

Connection: Allows you to set the IP Address and Server Password for the N2KServer

Units Setup: Allows you to configure measurement units for displayed parameters

Password: Allows you to password-protect the N2KView configuration. Note: this is different from the "**Server Password**" entered in the "**Connection**" dialog box.

About: Displays Software Version and Hardware License Key serial number.

7 General Concepts

7.1 Client/Server Architecture

The N2KView Vessel Monitoring and Control System is based on a client/server architecture. In this context, a *server* is defined as a component that provides services over a network and a *client* is defined as a component that requests and uses those services.

In the N2KView System, there is one server and one or more clients. The server component is implemented by the N2KServer software, and the client components are implemented by the N2KView software. The service offered by the server to the clients is access to the NMEA 2000 network data that the server receives from the NMEA 2000 network via its NMEA 2000 gateway. The network over which this service is offered is implemented as a TCP/IP (Transmission Control Protocol/Internet Protocol) network, which is discussed in the next section.

7.2 TCP/IP Networks

The networking protocol that is used for the communication between the server and clients in the N2KView system is the TCP/IP protocol. This protocol is used by the World Wide Web, FTP (File Transfer Protocol), and many others of the most popular applications on the Internet. The TCP/IP connection can be made over an Ethernet connection, a Wi-Fi connection, cellular phone data connection, and many other types of media. In fact, a single packet of TCP/IP data may traverse multiple types of media on its journey. The TCP/IP protocol is natively supported by Microsoft Windows XP and Microsoft Windows Vista, as well as Internet-connected cellular phones.

Each computer on a TCP/IP network is identified by an IP address unique to that network. An IP address consists of four numbers, each ranging between 0 and 255, separated by periods. This is referred to a dotted decimal notation. Examples of IP addresses in this format are 10.0.0.1, and 62.12.31.188.

7.3 NAT (Network Address Translation)

If you wish to use N2KView to view data from an N2KServer on a separate network through an Internet connection, please read this section. If your N2KServer and N2KView computers are on the same network, you may skip this section.

In the early days of the Internet, each computer connected to the Internet had its own *IP address*.

With the explosive growth of the Internet, the number of distinct IP addresses is starting to run out. It is no longer practical for an Internet Service Provider (ISP) to provide its customers with individual IP addresses for each component the customer wishes to connect to the Internet. Rather, the ISP normally assigns each customer a single IP address, and a router implementing Network Address Translation (NAT) is connected to the Internet connection (sometimes referred to as the Wide Area Network, or WAN, connection) on one side, and to the Local Area Network, or LAN, on the other side. Each computer on the LAN side of the connection will be assigned its own IP address, typically in the ranges 192.168.x.x, 10.x.x.x, and 172.16.x.x through 172.31.x.x, where x can be any number in the range 0-255. The WAN connection will be assigned a single IP address by the ISP.

Generally, network address translation is performed by a router that is connected to the Internet via a Cable or DSL connection in the WAN side, and to the local area network (LAN) via Ethernet or Wi-Fi connections. In order to access an N2KServer on the local area network from an N2KView outside of the LAN. You must configure the router to allow incoming connections on port 6544 and to forward these connections to the IP address of the N2KServer computer. Consult the documentation that came with your router for details.

7.4 Static and Dynamic IP Addressing

If you wish to use N2KView to view data from an N2KServer on a separate network through an Internet connection, please read this section. If your N2KServer and N2KView computers are on the same network, you may skip this section.

If you request a *Static IP Address* from your ISP when you set up your Internet connection, the WAN IP address will always be the same. If you didn't make this request, your ISP will assign you a *Dynamic IP Address*, which may actually change from time to time. In this way, the ISP only needs to have enough addresses to cover its customers who are connected to the Internet at any given time. If you stop or lose your Internet connection, your Dynamic IP address will be released and may be reassigned to someone else.

If you wish to connect to an N2KServer from off your vessel's local network via an Internet connection, you have two choices. First, you can request a static IP address from the ISP for your vessel; secondly, you may register your N2KServer's IP address with a "dynamic DNS service", such as the ones offered freely by www.dyndns.org, among others. Please visit their websites for more information on how dynamic DNS services operate.

7.5 Software Firewall Configuration

If you wish to run N2KView and N2KServer on two separate computers and are running a software firewall product other than Windows Firewall, please read this section. Otherwise, you may skip this section.

A firewall is a component of hardware or software designed to protect your computer from unfettered access from the Internet. There are two kinds of firewalls: software and hardware. A software firewall is a component such as Windows Firewall or Norton Internet Security. A major function of these programs is to allow your computer to initiate connections out onto the Internet, but to block your computer from receiving incoming connections from the Internet. If you wish to be able to view your vessel's data from another computer, your N2KServer computer's software firewall must be configured to allow incoming connections from N2KView clients. The N2KServer makes these adjustments to the Windows Firewall software when it is installed. If you are running firewall software from another vendor, you may have to configure your firewall software to allow this incoming TCP protocol connection on port 6544.

7.6 Data Security and Encryption

Making your vessel's data available over local networks or the internet presents multiple security concerns. First, it is desirable to keep anyone from viewing your vessel's data without authorization. Second, and more important, it is imperative that no unauthorized persons be able to place data onto your vessel's NMEA 2000 network.

The N2KView system protects your vessel's data with multiple levels of protection. First, any data that passes between the N2KServer server component and any N2KView client components is protected using industry-standard SSL encryption. This encryption standard is widely used to protect financial information on the internet. Each communication session negotiates a random encryption key every time a connection is established. This makes the data secure over public and private Wi-Fi networks, as well as the internet. Each N2KView client that wishes to connect to an N2KServer server component must authenticate itself by means of a *server password*. The server password is transmitted by the N2KView client to the N2KServer server over the encrypted communication link. The N2KServer compares the server password to the one it was programmed with. Only if the server password received from the client matches the server's stored password is the client granted access to the NMEA 2000 network data.

7.7 NMEA 2000 Considerations

This section describes some requirements for the NMEA 2000 networks to be monitored with N2KView.

7.7.1 Instancing

The one aspect of NMEA 2000 that you need to be aware of as a user of N2KView is the concept of instance numbers, or instancing. To enable parameters from different devices to be distinguished, an instance number is associated with the source of each parameter. This may be done as a Device Instance or a Data Instance, depending on the message format used to transport the data on the NMEA2000 bus. The user does not need to know whether Device Instancing or Data Instancing is used to configure N2KView. When configuring each component on the display, the instance number associated with the source of the data should be known to ensure that the component is monitoring the correct instance of the parameter.

For example: when configuring a control to monitor the Port Engine Revs, the instance number should be set to 0; setting it to 1 would monitor the Revs of the Starboard Engine.

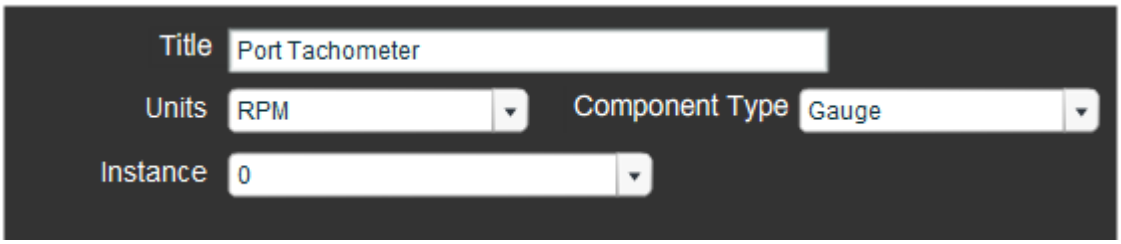


Figure 23 – Setting Instance Number

For simple configurations, where there is only one source of data, N2KView allows the Instance Number to be set to “Any”. If this is chosen, the component will lock on to the first matching parameter received on the NMEA2000 bus, regardless of its Instance Number. If there are more than two matching parameters on the bus, this will lead to unpredictable behavior. If there is only one matching parameter, it is an easy way to set up the component without knowing what the real Instance Number is.

Instance Numbers can either be allocated to the Device as a whole (Device Instancing) or to individual data elements (Data Instancing).

7.7.1.1 Device Instancing

The *device instance* is an eight-bit value (ranging between 0 and 255) that every NMEA 2000 device transmits when it joins the bus and upon request thereafter. This becomes important when you have multiple devices that transmit the same data. It is possible, for example, to have two GPS antennas on a vessel, with one serving as a primary antenna and others serving as backups. If this is so, the NMEA 2000 standard requires that the two different antennas have two different device instances. If you are using a certified NMEA 2000 product, the NMEA 2000 standard requires that a user be able to program the device instance in each product. Consult the device documentation or

contact your device manufacturer in order to determine how to program the instance into a particular device.

7.7.1.2 Data Instancing

Certain NMEA messages, such as those from batteries, tanks, engines, and transmissions, have *data instances* embedded in the messages. These data instances are used, if programmed, to relate data to specific data sources. Data instances are also required by the NMEA 2000 standard to be field-programmable, so please consult your device's documentation for details on how to program this value.

In order to support "plug-and-play" operation, if N2KView receives the same data from multiple devices that have the same device instance programmed, it will "lock on" to the first unit it receives data from until either 1) it stops receiving data from the first unit, in which case it will switch to the second unit, or 2) it starts receiving data from another unit with higher Priority, in which case it will transmit the data from that unit.

7.7.2 Data Source Types

The NMEA 2000 standard provides for the transmission of data from similar devices, but for different sources. For example, the NMEA 2000 standard supports six different types of fluid tanks: Fuel, Oil, Live Well, Fresh Water, Waste Water, and Black Water. It further supports up to sixteen tanks of each of these types. It is the responsibility of the person installing the NMEA 2000 system to ensure that each tank level sender is programmed with the appropriate fluid type and tank instance.

7.7.3 Sensor Selection

Of course, one key to making the N2KView System work is making sure that your NMEA 2000 network has the proper sensors to provide the information you wish to monitor using N2KView. Section 8.6 on page 122 contains a listing of all of the data types that can be monitored using N2KView. One of the details provided for each data type is a list of the Maretron components that can provide that data. Please note that certain data types require multiple sensors of different types.

8 N2KView

This section details the configuration and operation of the N2KView client component of the N2KView System.

8.1 General Concepts

8.1.1 Touch Screen Operation

N2KView was designed so that all functions in operational mode can be performed with either a mouse or a touch screen. It is still required to have a mouse and a keyboard for performing configuration of N2KView.

8.1.2 Parameters

The key concept of N2KView is the display of *parameters*. A parameter is a piece of information about some function of the vessel. The parameter is defined by a particular *data type*, such as engine speed or barometric pressure, and possibly also by a particular instance of that data type; for example, the speed of the Port Engine.

All of the available data types that N2KView can display are listed in Section 8.6 on page 122.

8.1.3 Components

Each parameter may be displayed by a *component*. A component is a graphical display that is generally dedicated to the display of the value of a parameter. Examples of components include the digital display, a gauge, and a bar graph. A complete listing of available component types appears in Section 0 on page 92. If data is not available for a component, the component will display a dash (“-“), and the indicators for gauge type components will be at the end stop (or peg). More complex components such as the compass will show a dimmed needle to indicate data not being available.

8.1.4 Favorite Screens and Parameter Display

N2KView employs the concept of *favorite screens*. These screens are user-customizable to display a group of components which generally will display related parameters, such as engine data, navigation data, tank levels, and so on. N2KView comes with the Alerts screen plus eight pre-defined favorite screens: Engines, DC Systems, AC Systems, Navigation, Environment, Tanks, and Miscellaneous. You may use the favorite screens as provided, modify them, or delete them and create your own screens from scratch. There is no limit to the number of favorite screens you can create.

8.1.5 Grid Layout Concepts

A favorite screen in N2KView is laid out on a square grid system. When you create a favorite screen, you determine the layout by setting the width and height in terms of the number of square grids that will be displayed on the screen. When the favorite screen is displayed in normal operating mode, it expands to fill the N2KView window as much as possible (or the entire computer screen if operating in full screen mode). You should choose a number of grids that is fairly small. When you create or move components, they snap to the grid intersections, so the fewer grids you have in your layout, the easier it is to place and align components. It is also important to choose a number of grids that matches the aspect ratio of the window in which you plan to run N2KView, in order to minimize blank space in the N2KView window. For example, if you are creating a favorite screen that is designed to run in full screen mode on a computer with a typical 4:3 aspect ratio, you may wish to make the favorite screen 40 grids wide by 30 grids high, so that the computer screen is completely filled when N2KView is operating in full-screen mode. However, you may wish to run N2KView simultaneously with a chart plotting program, letting the chart plotting program occupy the left half of the computer screen and letting N2KView occupy the right half of the computer screen. Choosing a favorite screen size of 20 grids wide and 30 grids high would allow you to completely fill this window with components. If you choose a favorite screen size and decide later that you wish you had chosen different height and width values, you can always change these at any time (see Section 8.4.6.5 on page 76 for details).

The Alert Status bar will be created below the grid on all the screens, and will have a height equal to one square.

8.1.6 Hardware License Key

The licensing of the N2KView Vessel Monitoring and Control System is controlled by the use of a Hardware License Key, which is often referred to by the term “dongle”. This Hardware License Key must be installed into a USB port on any computer running the N2KServer component. The software tests for the presence of the appropriate hardware license key before it begins operation. If the hardware license key is not detected, the software will not run. After the software starts running, it continually tests for the presence of the hardware license key. If the hardware license key is removed from the computer, the software will stop functioning and will display a dialog box asking you to reconnect the hardware license key to the system.

8.2 Using N2KView

This section describes how to operate the N2KView program after it is installed.

8.2.1 The Opening Screen

When you start N2KView, the program will display an opening screen (shown in Figure 24 below) listing the title and software version of the program, and asking you to accept the following agreement:

> *WARNING: By pressing "Accept", you acknowledge that while Maretron products are designed to be accurate and reliable, they should be used only as aids to navigation and vessel monitoring and not as a replacement for traditional aids and techniques.*

If you accept the warning, press the "**Accept**" button and the program will change into operational mode. If you do not accept the warning, press the "**Exit**" button and the program will terminate.

N2KView Demo
Warning
Maretron
N2KView - Vessel Monitoring and Control System
Software Version - 2.6.0 build 20090904
WARNING: By pressing "Accept", you acknowledge that while Maretron products are designed to be accurate and reliable, they should be used only as aids to navigation and vessel monitoring and not as a replacement for traditional aids and techniques.
Exit
Accept

Figure 24 – N2KView Opening Screen

8.2.2 The Operational Mode Screen

Once you have accepted the warning in the opening screen, it closes and the operational mode screen appears. An example of an operational mode screen is shown below.

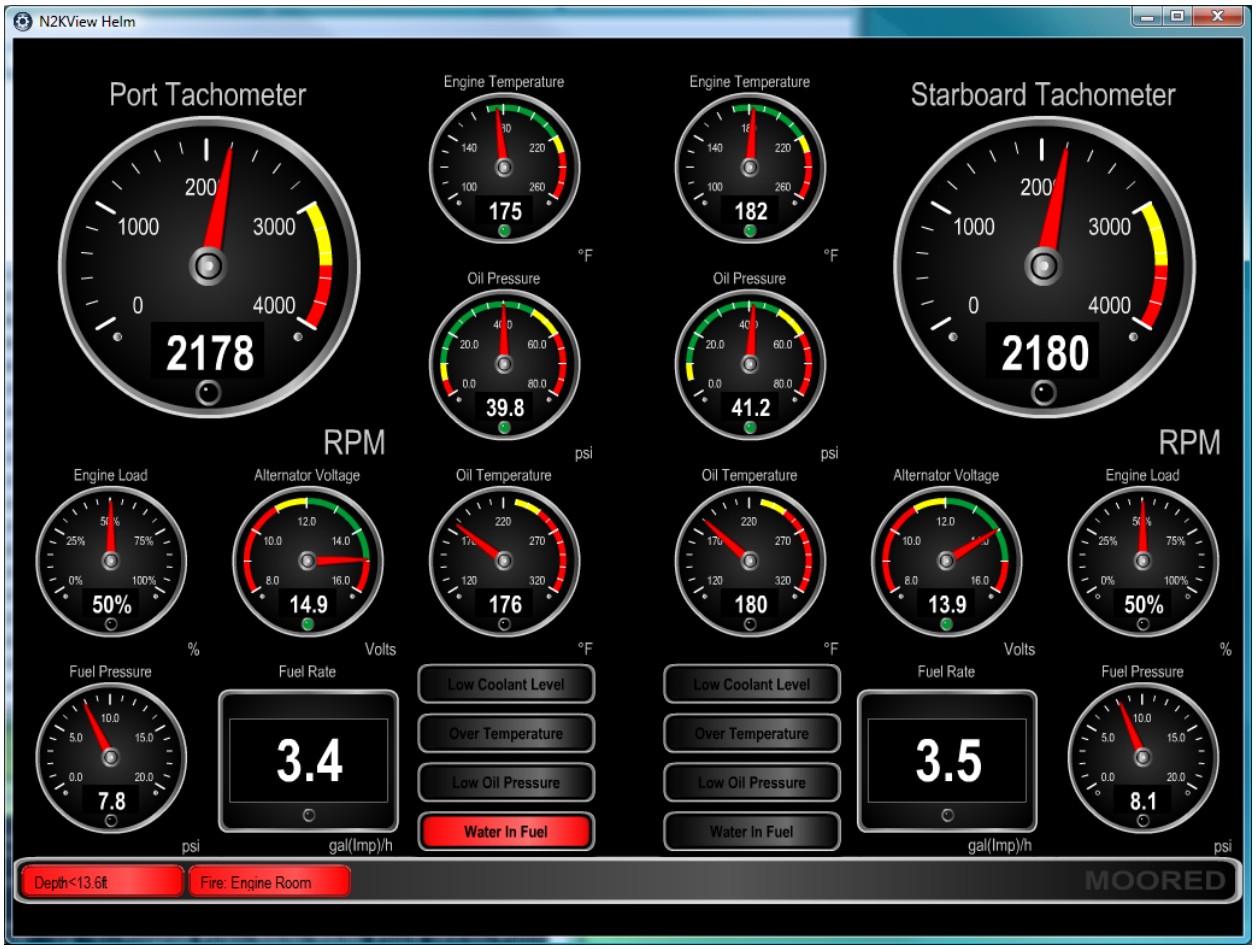


Figure 25 – N2KView Operational Mode Screen

8.3 Operation

This section describes the activities that you may wish to perform with N2KView once it is fully configured and in operation.

8.3.1 Changing Between Favorite screens

You may change between favorite screens in one of two ways. First, press on the N2KView window to display the tabs, and then press the tab along the top of the N2KView window for the favorite screen you wish to display. Second, you can cycle through the list of defined favorite screens by using the control button and the left-arrow and right-arrow keys on the computer's keyboard (or PageUp and PageDown). If video is displayed, the keyboard may be disabled, but the tabs will still work.

8.3.2 Entering Configuration Mode

In operational mode, press anywhere on the N2KView window to display the screen tabs. While the screen tabs along the top of the screen display your defined favorite screens, the screen tabs along the right-hand edge of the screen perform various configuration functions. Section 8.4 on page 64 describes these configuration tabs and the functions they perform.

8.3.3 Switching Between Day and Night Mode

N2KView supports a Night Mode to enable viewing in dark conditions. In this mode, all colors are converted to muted red tones so that you can view the favorite screens without reducing your night vision. You may enter Night Mode by pressing the "**Night Mode**" tab. In Night Mode, this tab changes to read "**Day Mode**", which you may press to exit Night Mode and return to Day Mode. You may also press "**Ctrl**" and the "**N**" key to toggle between day and night modes.

8.3.4 Switching Between Windowed and Full-Screen Configurations

You may change the viewing mode of N2KView to take up the entire computer screen. Pressing the "**F11**" key will toggle N2KView between full-screen mode and windowed mode. In full-screen mode, you may wish to hide the Windows taskbar so that the N2KView window is the only visible element on the computer screen. You can do this by right-clicking on the Windows taskbar, selecting '**Properties**" from the pop-up menu, checking the "**Auto-hide the taskbar**" box on the "**Taskbar**" tab of the "**Taskbar and Start Menu Properties**" dialog box that displays, then clicking on the "**OK**" button. The taskbar will then disappear from view but will reappear whenever you move the mouse to the bottom edge of the computer screen.

You may also enter Full Screen mode by pressing the "**Enter Full Scrn**" tab on the right of the screen. In Full Screen Mode, this tab changes to "**Exit Full Scrn**", and now can be used to exit Full Screen mode.

If the system was shut down in Full Screen mode, then it will start up again in Full Screen mode after the initial Warning message has been accepted.

8.3.5 Minimizing N2KView

To minimize N2KView to the taskbar, switch N2KView into windowed mode if it not already there (see Section 8.3.4 for details), and then click on the minimize button (with a straight horizontal line in the bottom of the button), third from the right in the group of system buttons in the extreme upper right hand corner of the window, at the right edge of the Windows title bar.

8.3.6 Terminating N2KView

To terminate the N2KView program, switch N2KView into windowed mode if it not already there (see Section 8.3.4 for details), and then click on the "**X**" in the extreme upper right hand corner of the window, at the right edge of the Windows title bar.

You may also terminate N2KView using the "**Alt-F4**" key combination in full-screen mode, or in windowed mode when N2KView is the active window.

8.4 Configuration

8.4.1 Displaying Screen Tabs

After you close the opening screen, the N2KView software enters normal operating mode. You may display the screen tabs at any time by pressing anywhere on the screen. The screen tabs used for N2KView configuration appear along the right side of the screen. A display of the screen tabs is shown below.

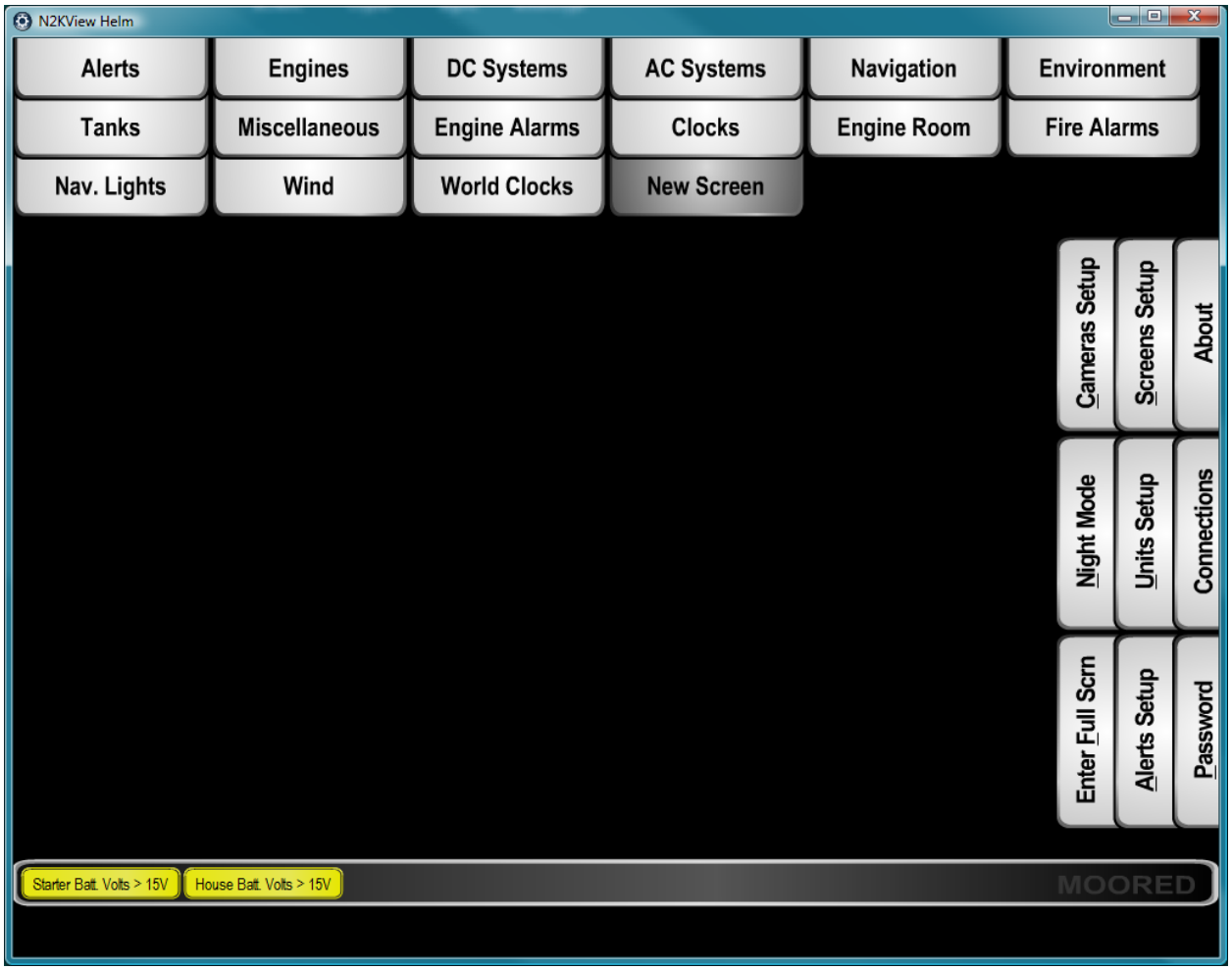


Figure 26 – N2KView Screen Tabs

8.4.2 About Tab

Pressing the "**About**" tab will cause the "About" dialog box to be displayed, which will display information about N2KView including its version number and serial number, both of which are necessary in the event you need to contact Maretron for technical support. Press the *OK* button to close the dialog box. A screenshot of the "About" window is shown below.

Figure 27 – About Window

8.4.3 Password Tab

Pressing "**Ctrl**" and "**P**" is a shortcut to display the Password Dialog.

N2KView allows you to set a password to protect your configuration from inadvertent changes. In order to set or change the password, press the "**Password**" tab, which will cause the "**Change Password**" dialog box to be displayed. If you are entering a new configuration password, leave the "***Old Password***" text box blank. If you are changing a configuration password, you must enter the existing password in the "**Old Password**" text box. Enter the new desired password into the "**New Password**" text box, and enter it again into the "**Repeat New Password**" text box. If you wish to remove the configuration password, simply leave the "**New Password**" and "**Repeat New Password"** text boxes blank. Once you are satisfied with the values you have entered, click the "**OK**" button to apply the changes you have made. A screenshot of the "**Change Password**" dialog is shown below.

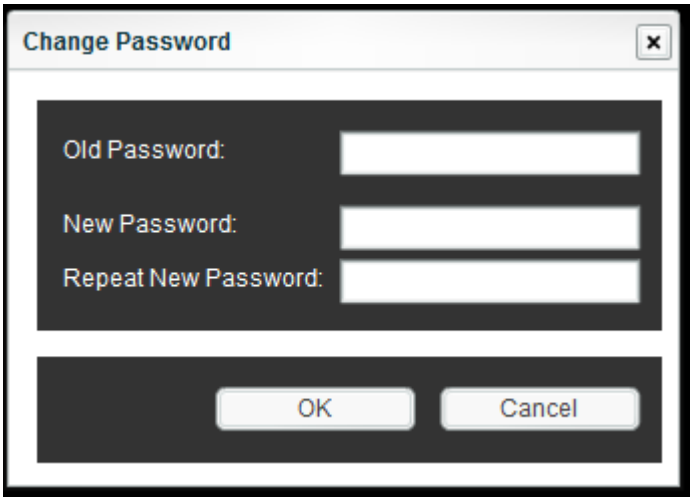


Figure 28 – Change Password Dialog

8.4.4 Connections Tab

Pressing the "**Connections**" tab causes the "**Connection Settings**" dialog to be displayed. This window allows you to configure the parameters that are used when connecting to the N2KServer and your Email Server.

N2KView programs can be given a label so that an installation having multiple copies of N2kView can distinguish between them. This is important for the alert management, when the identity of the station that responds to an alert can be shown. The label defaults to "**Helm**", and is displayed at the top left of the window border.

A screenshot of the "**Connections Settings**" dialog is shown below.

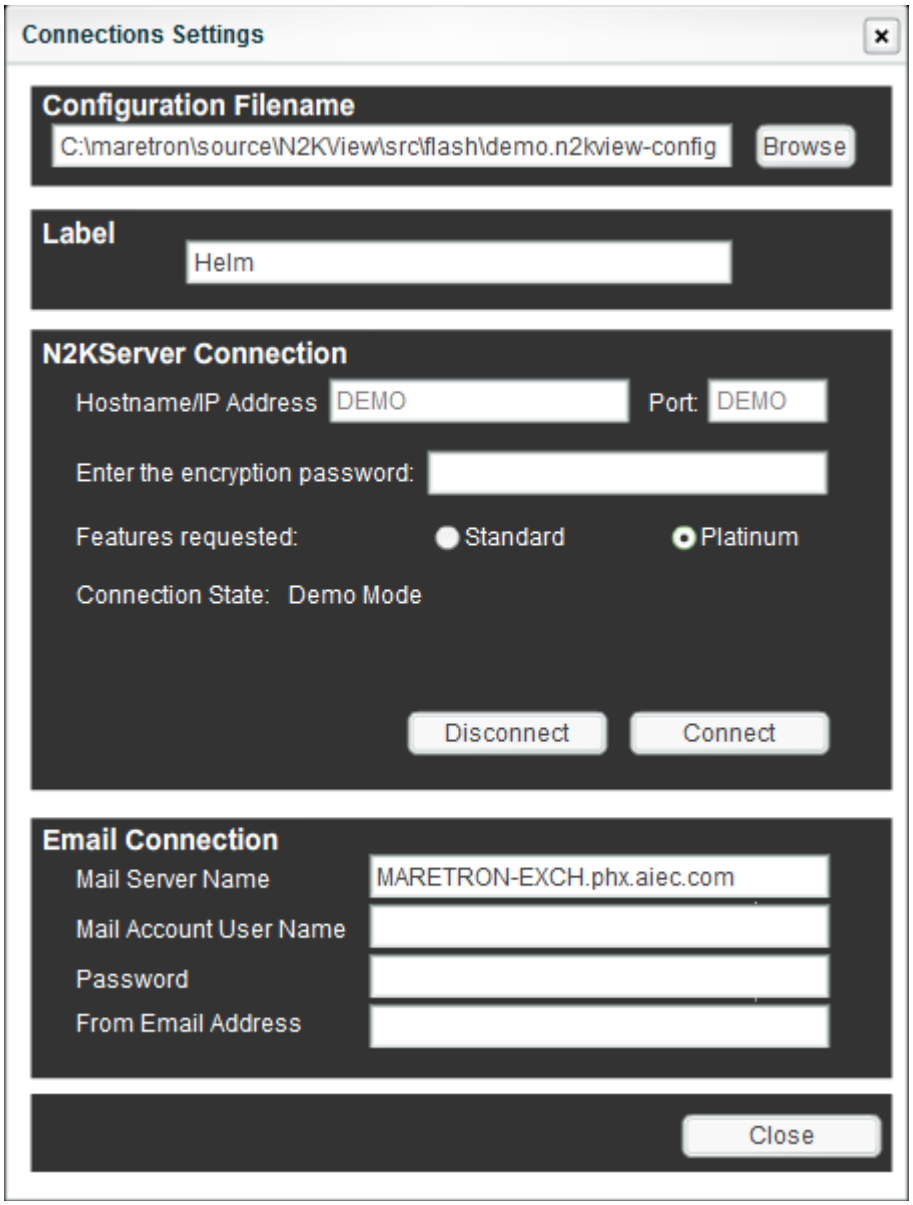


Figure 29 – Connections Settings Dialog

8.4.4.1 Configuration Filename

The configuration file contains the layouts of all the favorite screens, the definition of the alerts and the cameras, and the connections settings that have been entered by the user. The file will always have an extension of ".dat", although this is hidden from the user in this field. The configuration file is automatically saved when the system is closed down.

This field contains the name of the configuration file. If there are multiple configuration files on disk, the entire database can be swapped out by browsing to the new configuration filename and selecting it, or by typing the new name in the field and moving the cursor to another field. If a file by that name does not exist, then the current configuration will be copied into the new filename, giving the user a convenient way of duplicating a configuration.

8.4.4.2 Label

This is a text field into which the label of this copy of N2kView may be entered. This label is displayed at the top of the screen, and is also passed as a reference as part of the Alert messages.

8.4.4.3 Hostname / IP Address

Please set this field to the Hostname or IP address of the N2KServer to which you wish to connect.

8.4.4.4 Port

Please leave this field at the default setting of 6544.

8.4.4.5 Enter the encryption password

Please set this field to the same value as you entered in the "**Server Password**" text box of the N2KServer to which you are connecting. NOTE: this is different from the configuration protection password which is changed using the "**Password**" tab.

8.4.4.6 Features requested

To use the full features of the Platinum version of N2KView, a platinum license must be requested from the server. When the connection to the server is made, a platinum license will only be requested if the "**Platinum**" radio button is selected. If the request is denied by the server, and a Standard license is available, the standard license will be granted and the selection will revert to the "**Standard**" radio button.

To use only the features of the Standard version of N2KView, select the "**Standard**" radio button. If a standard license is available, it will be granted by the server. If the only license available is a Platinum license, then the standard features from the Platinum license will be granted.

8.4.4.7 Disconnect

Press this button to disconnect from the server, and to return the license previously granted to the pool of available licenses.

8.4.4.8 Connect

Press this button to request from the server a license of the type selected from the "**Features Requested**" radio buttons. The success (or failure) of the connection attempt will be displayed in the "**Connection State**" area of the dialog.

8.4.4.9 Connection State

This is the area on the screen which communicates the current state of the connection to the server. For demo versions of N2KView, this field will show "**Demo Mode**".

8.4.4.10 Mail Server Name

The Alerts Feature of N2KView has the ability to send emails to a list of users when an alert is detected or cleared. This capability is dependent on N2KView being able to establish a connection to an email server. The email service is not provided by Maretron; and can be the same Email service that you have for standard email. If you are using Outlook as your email program, all these settings can be found in the **Tools → Account Settings → Email** dialog.

The mail server name is the name of your mail server.

8.4.4.11 Mail Account User Name

This is your username on the mail server.

8.4.4.12 Password

This is the password required to access your account on the mail server.

8.4.4.13 From Email Address

This is the email address that will appear in the from area of the emails sent by N2KView.

8.4.5 Units Setup

Pressing "**Ctrl**" and "**U**" is a shortcut to display the Units Setup Dialog.

Pressing the "**Units Setup**" tab causes the "**Units Setup**" dialog to be displayed. The "**Units Setup**" dialog allows you to set the desired display units for the different parameter types supported by N2KView. The following sections provide more detail on the individual unit settings.

A screenshot of the "**Units Setup**" dialog is shown below.

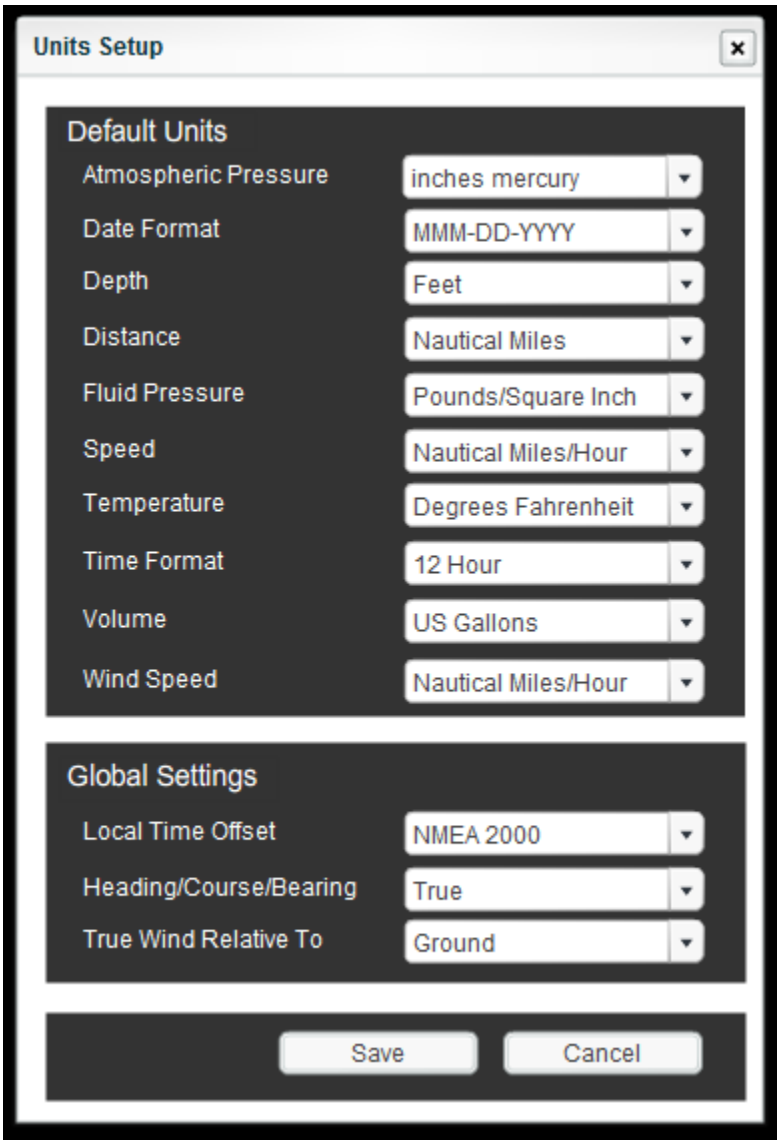


Figure 30 – Units Setup Window

8.4.5.1 Default Units

This section of the "**Units Setup**" dialog you to choose the default units which are selected when creating components to measure various types of parameters. You are given the opportunity to select units other than the default units when you are creating or modifying components using the Component Editor.

8.4.5.1.1 Atmospheric Pressure

Bar, millibar, inches mercury, Kilopascal, Millimeters Mercury

8.4.5.1.2 Date Format

DD-MM-YYYY (31-12-2007), DD-MMM-YYYY (31-DEC-2007), MM-DD-YYYY (12-31-2007), MMM-DD-YYYY (DEC-31-2007)

8.4.5.1.3 Depth

Feet, Fathoms, Meters

8.4.5.1.4 Distance

Kilometers, Nautical Miles, Statute Miles

8.4.5.1.5 Fluid Pressure

Bar, Kilo Pascal, Pounds/Square Inch

8.4.5.1.6 Speed

Kilometers/Hour, Nautical Miles/Hour, Miles/Hour

8.4.5.1.7 Temperature

Degrees Centigrade, Degrees Fahrenheit

8.4.5.1.8 Time Format

12 Hour, 24 Hour

8.4.5.1.9 Volume

Imperial Gallons, Liters, US Gallons

8.4.5.1.10 Wind Speed

Beaufort, Kilometers/Hour, Nautical Miles/Hour, Miles/Hour

8.4.5.2 Global Settings

This section of the "**Units Setup**" dialog allows you to configure settings that are used throughout the N2KView software.

8.4.5.2.1 Local Time Offset

These selection boxes allow you to configure the offset from UTC (Universal Coordinated Time, also known as GMT, or Greenwich Mean Time). For example, if you were in the Eastern US, you would select -4:00 during daylight savings time, and -5:00 during standard time (daylight savings not in effect). You can configure local time in increments as small as 15 minutes.

Local Time Offset may be set to NMEA2000, in which case N2KView will look for the offset on the NMEA2000 bus (this value can be supplied in PGN 129033). If this value is not received on the bus then, as a last resort, N2KView will use the time offset defined in the computer. The value of the Local Time Offset can be displayed in a digital component using the **Local Time Offset** parameter under the **Time/Date** category.

8.4.5.2.2 Heading/Course/Bearing

This selection box allows you to decide whether headings, course, and bearing information are displayed as true (relative to the geographic North Pole) or magnetic (relative to the magnetic north pole).

8.4.5.2.3 Wind True Relative To

"**True Vessel Relative To**" describes the speed and direction of the wind if the boat were "stopped". This global setting determines whether "stopped" means relative to a point on the ground or to the water. Power boaters may prefer to use the "**Ground**" setting of this parameter, whereas sail boaters may prefer to use the "**Water**" setting. Please see Section 0 on page 184 for details of how this setting affects which sensors are needed to produce this measurement.

8.4.6 Screens Setup

When your start N2KView for the first time, you will notice that there are eight predefined favorite screens already set up for. You can use these favorite screens as they are provided, modify them to suit your needs, or delete them and create your own favorite screens.

8.4.6.1 Screens Setup Screen

Pressing "**Ctrl**" and "**S**" is a shortcut to display the Screens Setup Screen.

This section explains each component of the "**Screens Setup**" window, which is shown below.

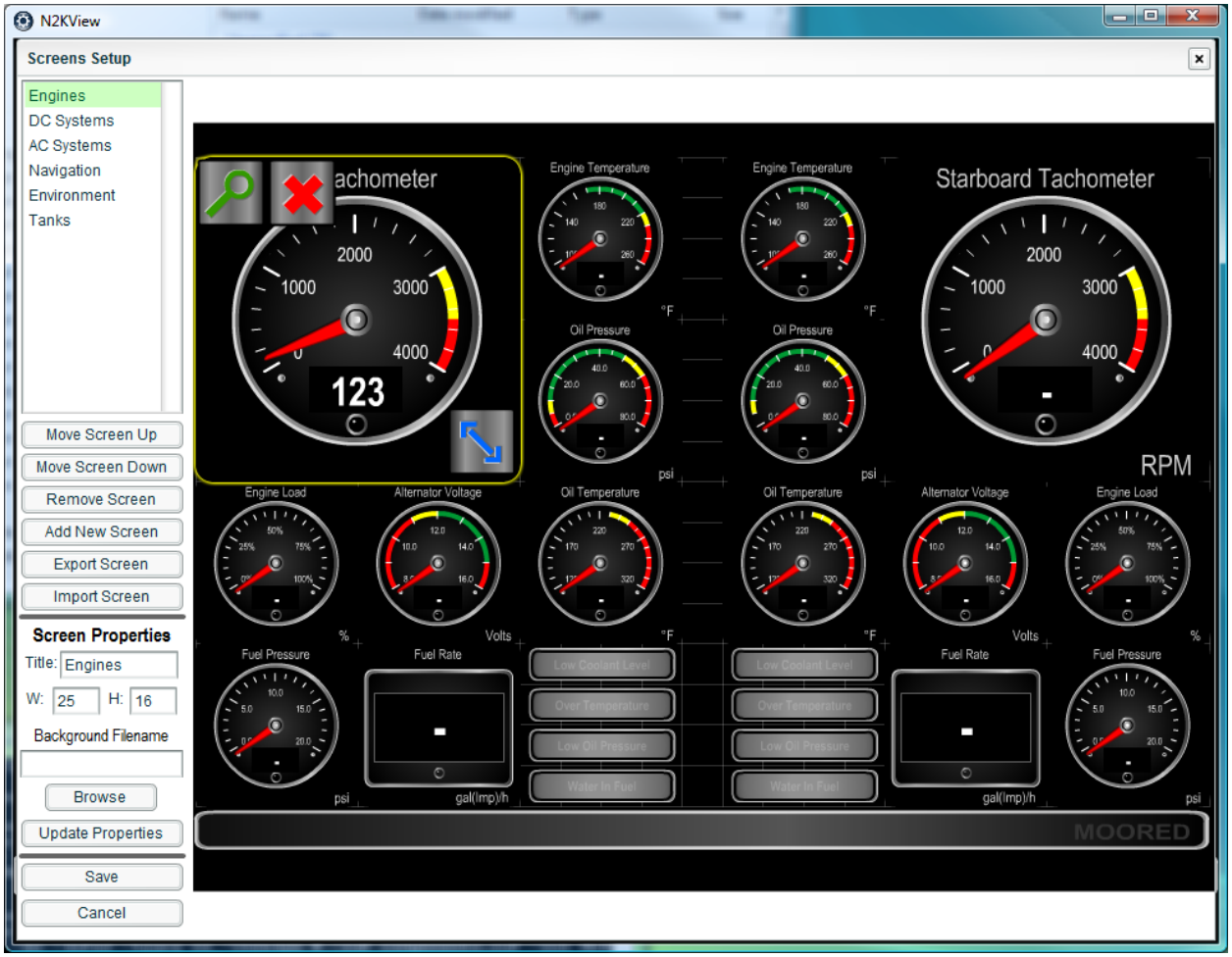


Figure 31 – Screens Setup Screen

8.4.6.1.1 Screen List

The "**Screen List**" appears in the upper left-hand corner of the "**Screens Setup**" screen. This list contains the names of all of the favorite screens you have defined. In order to configure a particular favorite screen, select its name in the "**Screen List**" by pressing on it.

8.4.6.2 Adding Screens

In order to define a new favorite screen, type the desired favorite screen name into the "**Title**" text box, then enter the desired width of the favorite screen In square grids into the "**W:**" text box and the desired height of the favorite screen in square grids into the "**H:**" text box. Finally, press the "**Add New Screen**" button to add the newly defined favorite screen to the list and display the new, empty favorite screen so that you can begin adding components to it.

8.4.6.3 Deleting Screens

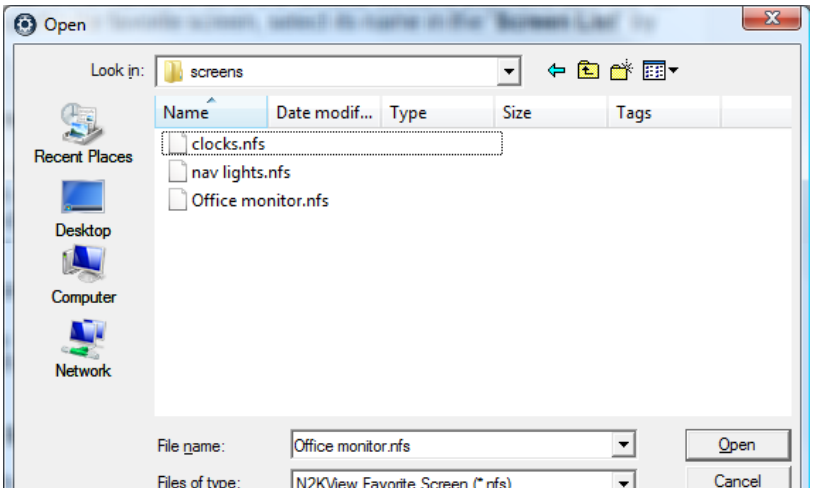
In order to remove a favorite screen from your configuration, select its name in the "**Screen List**", and then press the "**Remove Screen**" button.

8.4.6.4 Renaming Screens

In order to change the name of a favorite screen, select its name in the "**Screen List"**, edit the favorite screen's name in the "**Title**" text box under "**Screen Properties**" to the desired value, and then press the "**Modify This Screen**" button. The favorite screen will now appear in the screen list with the new name.

8.4.6.5 Exporting Screens

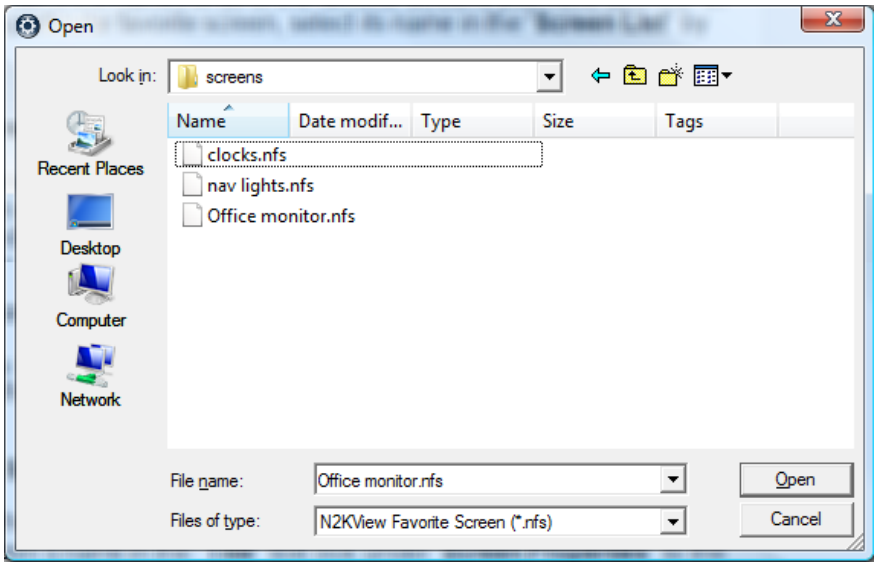
The layout of the currently displayed screen may be exported to disk as a N2KView Favorite Screen File. Pressing "**Export Screen**" will open a browse dialog that will enable you to select a filename for the screen. The extension of the .nfs will be appended to the filename.



Selecting an existing file will cause that file to be over-written, otherwise the file is created.

8.4.6.6 Importing Screens

Favorite Screens may be imported from disk. Pressing "**Import Screen**" will open a browse dialog that will allow you to select a N2KView Favorite Screen (nfs) file.



If the file exists, the imported screen will be added to the Screen List.

8.4.6.7 Resizing Screens

In order to change the size of a favorite screen, select its name in the "**Screen List**", and then enter the new width and/or height in square grid units into the "**W:**" and "**H:**" textboxes, respectively. Press the "**Modify This Screen**" button to make the changes. The favorite screen will now be displayed with the new grid settings. If you changed the favorite screen to have more grids than it previously had, all of the existing components will appear in the upper left corner of the new favorite screen. If you change the favorite screen to have fewer grids than it previously had, then all of the components that would fall off the lower and/or right edges of the favorite screen with the newly defined size, will be removed from the favorite screen configuration.

8.4.6.8 Adding Components to Screens

In order to add a component to a favorite screen, drag the mouse or your finger over the displayed favorite screen to define the location and size of the new component. You may not add a new component which overlaps components that are already present. Release the mouse button or remove your finger from the screen once you have defined the location and size of the component shown by the highlighted grid squares. Once you have completed defining the size and location of the new component, you are presented with a list of parameters, grouped by categories, from which you must select the parameter that you wish to display.

Clicking on a category (categories are displayed as folders) will open the category to display the parameters associated with that category. Note that some parameters may appear under more than one category.

An example screenshot of the "**Parameter**" list is shown below.

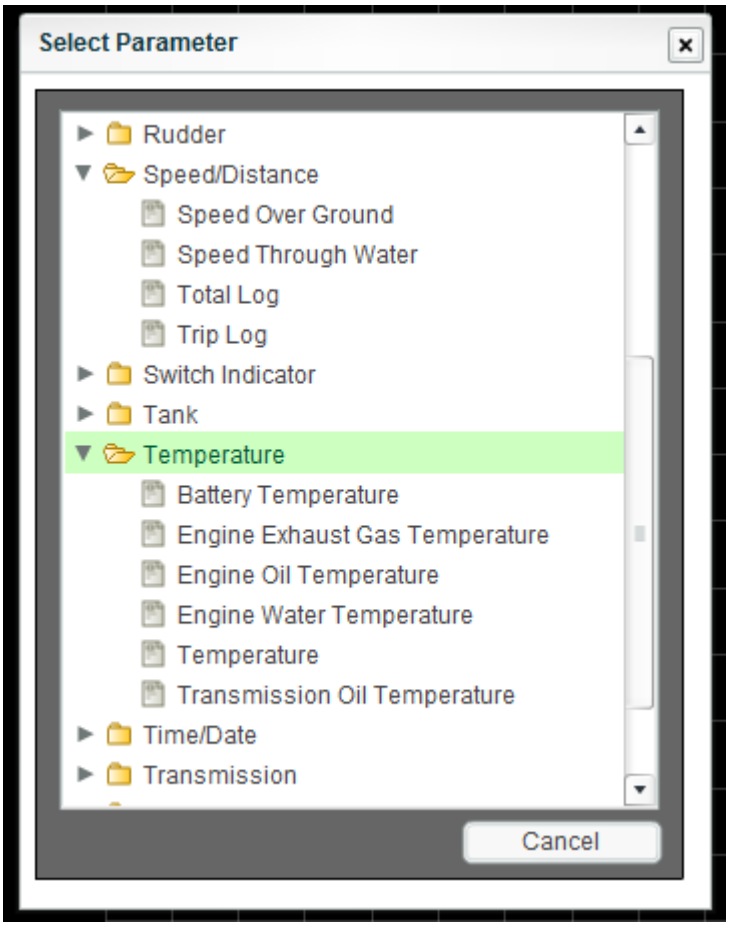


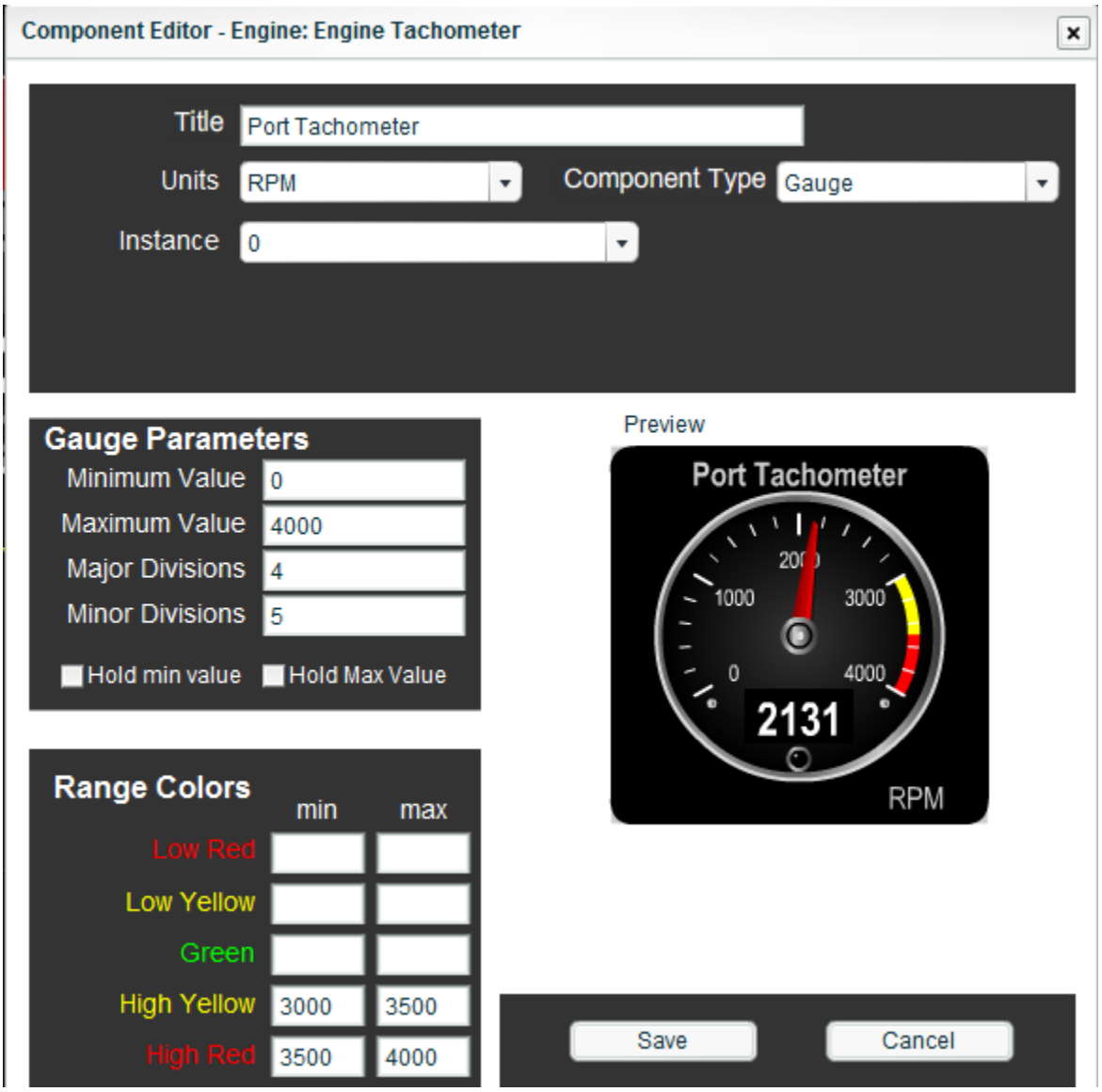
Figure 32 – Parameter List

Clicking on a parameter will open the Component Editor for that parameter.

8.4.6.9 Component Editor

The Component Editor has a number of different fields; only the fields that are applicable to the parameter chosen will be displayed.

An example of a Component Editor is shown below.


Component Editor - Engine: Engine Tachometer
Title
Port Tachometer
Units
RPM
Component Type
Gauge
Instance
0
Gauge Parameters
Minimum Value
0
Maximum Value
4000
Major Divisions
4
Minor Divisions
5
Hold min value
Hold Max Value
Range Colors
min
max
Low Red
Low Yellow
Green
High Yellow
3000
3500
High Red
3500
4000
Preview
Port Tachometer
1000
3000
0
4000
2131
RPM
Save
Cancel

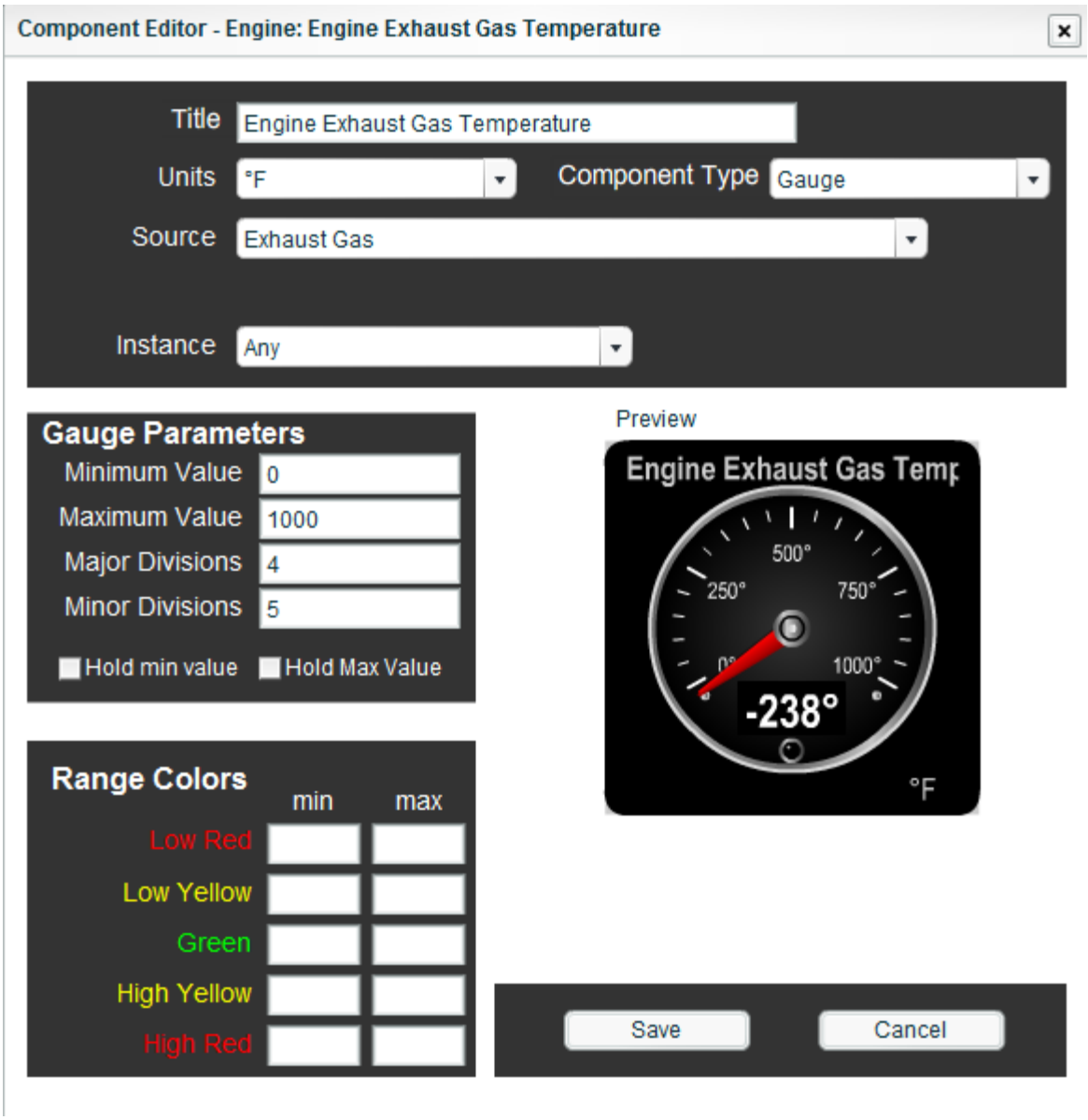
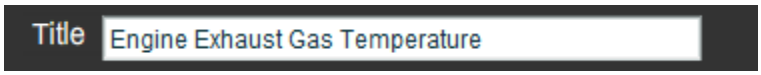


Figure 33 – Component Editor

8.4.6.9.1 Preview

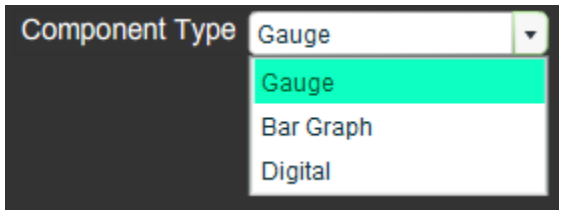
Each component editor has a preview screen so that you can see what the finished component will look like. If real data matching the parameter is available, it will be displayed in the Preview; if not then simulated data will be used.

8.4.6.9.2 Title



The title of the component is displayed to the left of Bar Graph Components, within Indicators, and above all the other types of Components. This is a free-form text field that should be used to clearly label what is being displayed. While there is no limit as to the length of the text that is entered, the resulting component may not show all the characters.

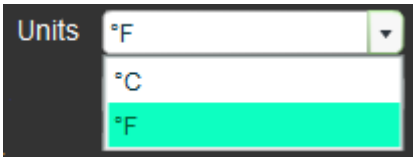
8.4.6.9.3 Component Type



The Component Type drop-down list is a list of the component types available for the selected parameter. Depending on the parameter you selected, you will have choices of different component types to use to display the parameter. Select the desired component type by pressing on the down-pointing arrow to the right of the control, and then select the component type from the list. The preview will be updated with the component type selected.

In some cases, only a single Component Type will be available.

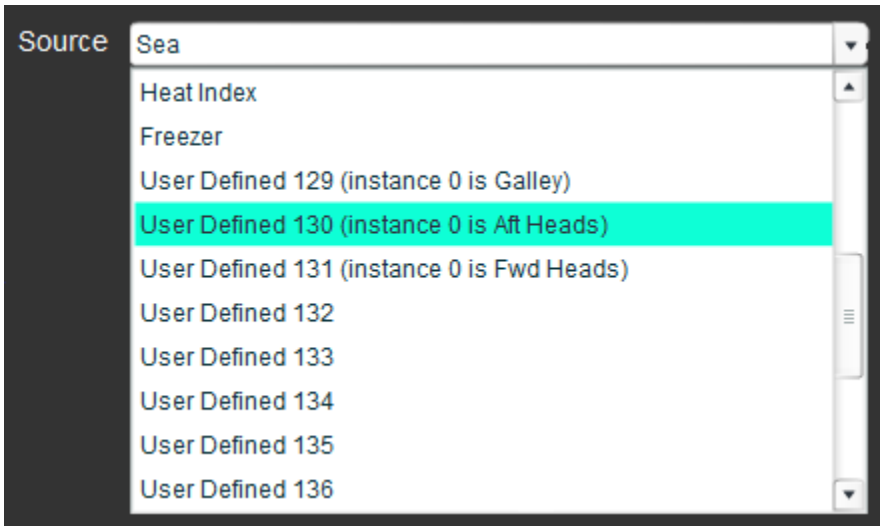
8.4.6.9.4 Units



The Units drop-down list is a list of the units available for the selected parameter. Depending on the parameter you selected, you will have choices of different units to use to display the parameter. Select the desired unit by pressing on the down-pointing arrow to the right of the control, and then select the unit from the list. The preview will be updated with the unit selected.

In some cases, only a single Unit will be available.

8.4.6.9.5 Source

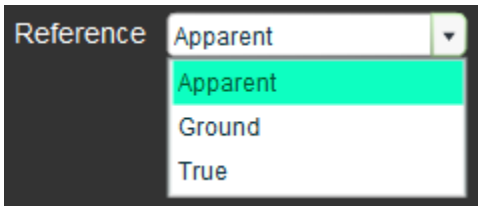


If the parameter supports multiple sources, the Source field will be displayed. This is a drop down list containing the set of available data sources for the parameter. Depending on the parameter selected, you will be presented with a list of sources for the parameter. If a label has been stored in the device for that source, then the label will be appended to the source name in parenthesis. Select the desired Data Source by pressing on the down-pointing arrow to the right of the control, and then select the Data Source from the list. The preview will be updated with the Data Source selected.

In some cases, only a single Data Source will be available.

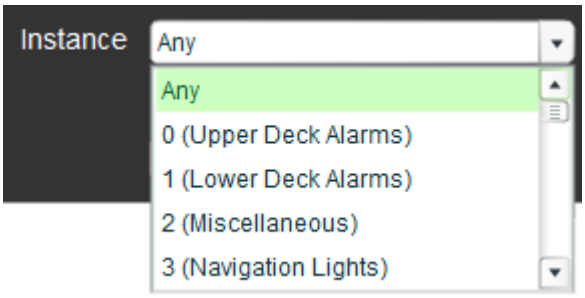
If a label has been stored in the transmitting device for the source, then the label will be displayed in parenthesis after the source name. If the Instance field has been set to "**Any**" then the instances for each discovered source label will be displayed as shown above.

8.4.6.9.6 Reference



If the parameter supports multiple references, the Reference field will be displayed. This is a drop down list containing the set of available data references for the parameter. Select the desired Reference by pressing on the down-pointing arrow to the right of the control, and then select the Reference from the list. The preview will be updated with the Reference selected.

8.4.6.9.7 Instance

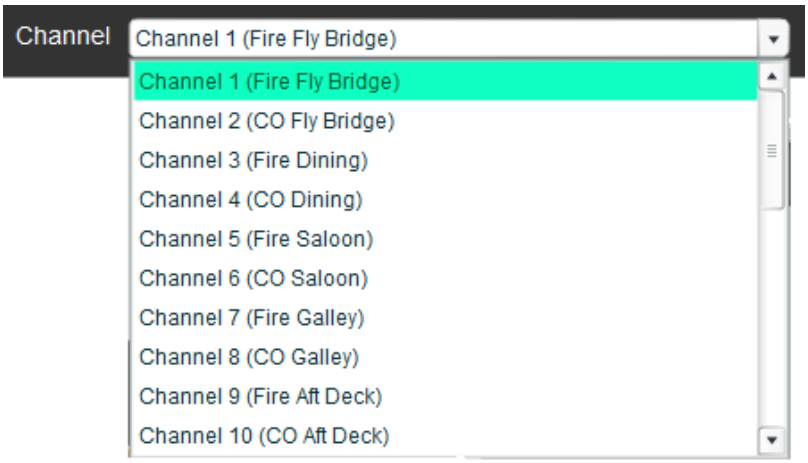


If more than one instance of the selected parameter can appear on the system, the Instance field will be displayed. If a label has been stored in the device, the label will be appended to the instance number in parenthesis. This is a combo box limited by the number of available instances for the parameter. These could correspond to device instances or data instances. Select the desired Instance by pressing on the combo box and scrolling down to the required value. The preview will be updated with the Data Source selected. See section 7.7.1 for details on the “Any” option.

8.4.6.9.8 Instances

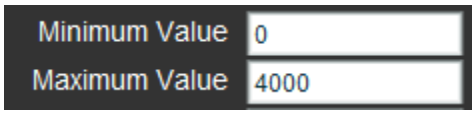
When creating a component that computes a value over more than instance of a value (e.g. the sum of the fuel levels in all the tanks), these are entered in a comma separated list of numbers. When complete, moving the cursor off the field will cause the preview to be updated.

8.4.6.9.9 Channel / Circuit Breaker


Channel
Channel 1 (Fire Fly Bridge)
Channel 1 (Fire Fly Bridge)
Channel 2 (CO Fly Bridge)
Channel 3 (Fire Dining)
Channel 4 (CO Dining)
Channel 5 (Fire Saloon)
Channel 6 (CO Saloon)
Channel 7 (Fire Galley)
Channel 8 (CO Galley)
Channel 9 (Fire Aft Deck)
Channel 10 (CO Aft Deck)

If the parameter you have selected has multiple indicators for each source (Electrical Distribution Circuit Breakers and Indicator Channels are examples of this), the Circuit Breaker or Channel field will be displayed. This is a drop down list containing the set of available indicators for the parameter. If a label has been entered for the indicator, the label will be appended to the indicator in parenthesis. Select the desired indicator by pressing on the down-pointing arrow to the right of the control, and then select the indicator from the list. The preview will be updated with the Data Source selected.

8.4.6.9.10 Minimum and Maximum Values

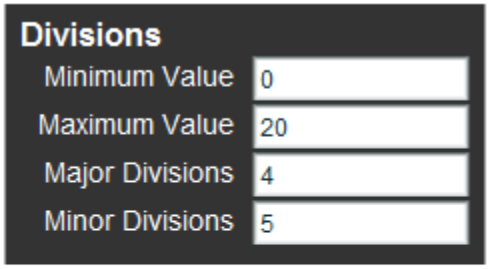


If you have selected a gauge component, a bar graph component, or a digital component with a parameter that has limits, the minimum and maximum values of that parameter should be entered here. In the case of the gauge component and the bar graph component, the minimum and maximum values are used to specify the limits on the gauge or bar graph.

If the component you have selected is of the Rudder Angle type, then the required maximum value should be entered here.

If the component is displaying a percentage, then the limits will be fixed at 0 and 100.

8.4.6.9.11 Major and Minor Divisions



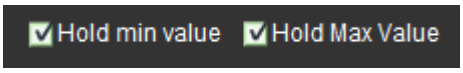
If the component you have selected is of the gauge type, then the required major and minor divisions should be entered here. Each major division is labeled with a value, and between the major divisions the minor divisions are smaller unlabeled tick marks.

In some cases, the value in the Major Divisions field will be fixed.

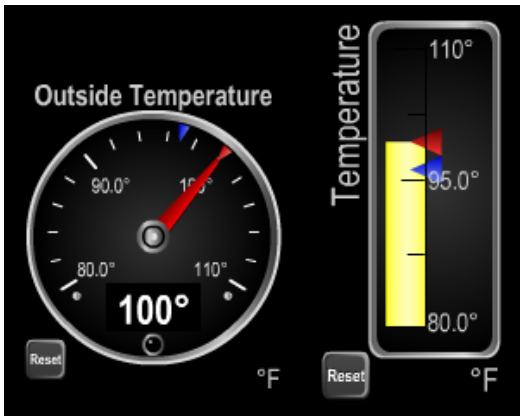
If the component you have selected is of the Rudder Angle type, then the required major divisions should be entered here. Each major division is labeled with a value.

Moving the cursor off the field will update the Preview.

8.4.6.9.12 Hold Min / Max Values

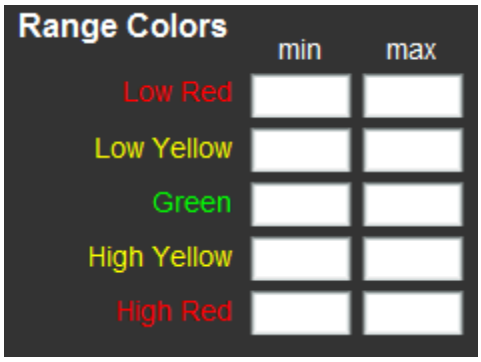


On some controls, extra “needles” have been added to show the extents of the needle movement. These are the min max marks. Typically they are blue for the minimum value, and red for the maximum value, but on controls where the min and max cannot be strictly applied, both are red, and there is only a single check box in the editor.



The marks may be brought back to the current needle position by pressing the **Reset** button located to the bottom left of the control.

8.4.6.9.13 Range Colors



Gauges may have color ranges drawn on them. Fields are provided for a low red range, a low yellow range, a green range, a high yellow range and a high red range. Both the minimum and maximum values for a range need to be filled for the range to be valid. If ranges overlap, red ranges will be drawn on top of yellow ranges and yellow ranges will be drawn on top of the green range. Gauges also have an LED below the digital part of the display, which will “light up” in the color of the appropriate range.

Digital displays also have an LED which can “light up” in the color of the appropriate range.

Bar Graphs can be colored in ranges as well. The portion of the bar that is displayed is colored to match the range data.

Example: If you are defining a gauge for battery voltage, you may decide that the gauge should display between 8 and 16 volts. You may also want the range between 11 and 13 volts to be considered normal, the range between 10 and 11 volts to be deserving of a low warning led, and any voltage below 10 volts to be deserving of a low fault indication. You may also wish the range between 13 and 14 volts to be deserving of a high warning led, and any voltage above 14 volts to be deserving of a high fault indication. In this case, you would set the values as shown in the screenshot below:

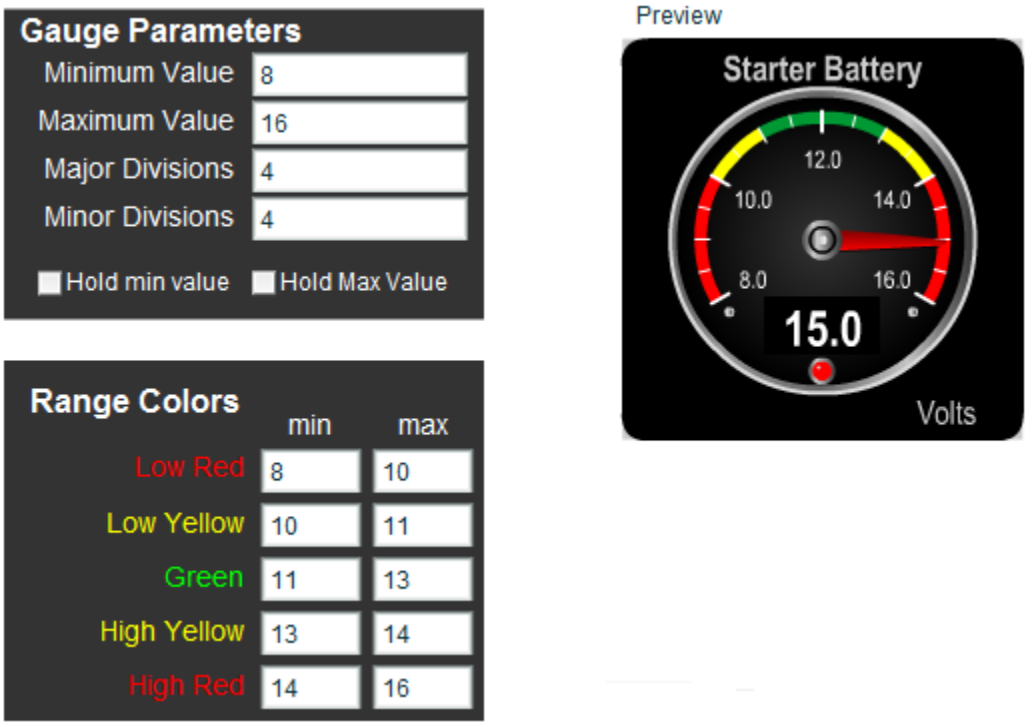
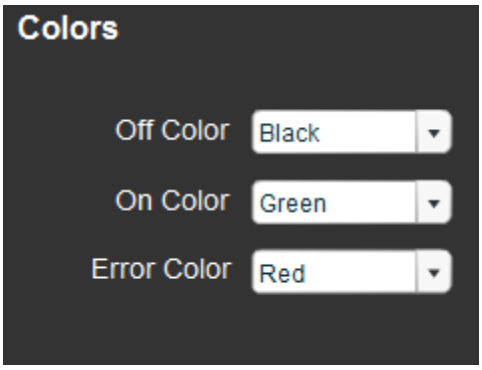


Figure 34 – Example of setting Divisions and Ranges

8.4.6.9.14 Indicator Colors



When the parameter type is an indicator, the Colors fields allow you to enter different colors for each of the states of the indicators. Select the desired color by pressing on the down-pointing arrow to the right of the control, and then select the color from the list.

8.4.6.10 Changing Components on Favorite screens

If you wish to change the data displayed by a particular component on the favorite screen, its title, its component type, or its defined data ranges, select the component on the favorite screen by pressing on it, then press on the green magnifying glass icon in the upper left hand corner of the selected component to enter the Component Editor.

A screenshot of a selected component is shown below.

Figure 35 – Selected Component in Screens Setup Mode

Pressing the green magnifying glass will open the Parameter List as if you were creating a new component. In this case, the tree structure is opened to reveal the parameter already being displayed, which is highlighted. An "**Open**" button is also present. Pressing the "**Open**" button will open the Component Editor with all the parameters of the component chosen, as will selecting the defaulted parameter.

Alternatively, by selecting a different parameter, the chosen component can be replaced by a new component that will be appropriate to display the newly selected parameter.

A screenshot of the parameter tree opened on an existing component is show below.

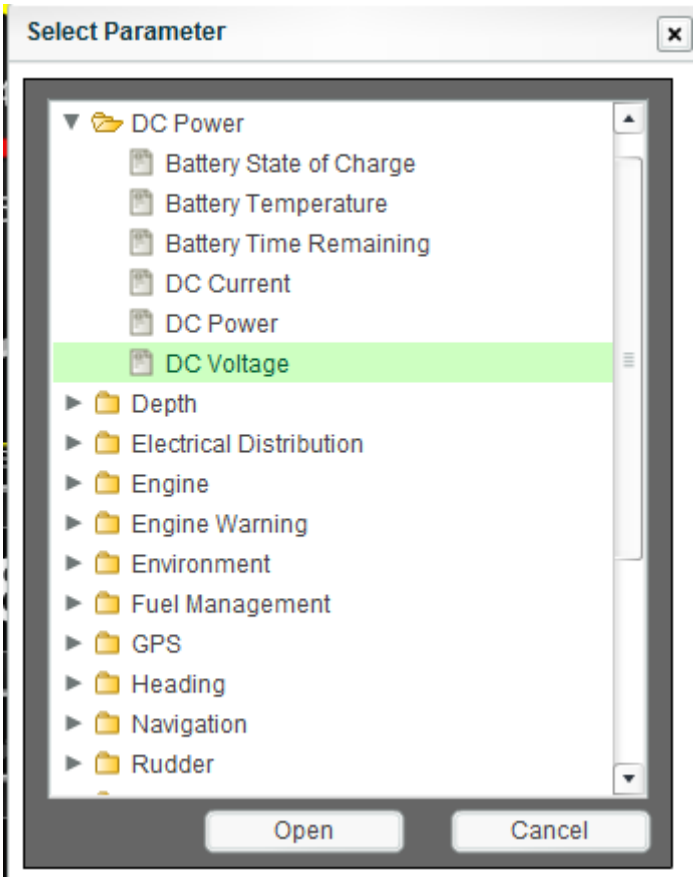


Figure 36 – Parameter Tree

8.4.6.11 Deleting Components from Screens

To remove a component from a particular favorite screen, select the component by pressing on it, then press on the red "**X**" icon near the upper-left hand corner of the highlighted component.

8.4.6.12 Moving Components on Favorite screens

To change the location of a component on a particular favorite screen, select the component by pressing on it, then drag it to the new desired location and release the mouse button or remove your finger from the screen. You may not move a component to a location where it overlaps one or more other components.

8.4.6.13 Resizing Components on Favorite screens

To change the size of a component on a particular favorite screen, select the component by pressing on it, then press the blue double-headed arrow icon in the lower right-hand corner of the highlighted component and drag it until the component is the desired size, then release the mouse button or remove your finger from the screen. You may not resize a component so that it overlaps one or more other components. Since resizing only works on the lower right-hand corner of the component, you may want to move the component before resizing it so that the upper left-hand corner of the component is in the desired place before you resize it.

8.5 Available Component Types

This section lists the different types of components that are available to view parameters in N2KView. The types of component available depend on the parameter being displayed. Section 8.6 below lists the different component types available for each parameter type.

8.5.1 Digital

The digital component shows the value of the displayed parameter in a numeric format. The value of the parameter is in the center of the component, the user-defined title appears at the top of the component, and the units of the parameter measurement appear in the lower right of the component. Digital components are square in aspect ratio (take the same number of grids in height as they do in width). Two examples of a digital component are shown below.

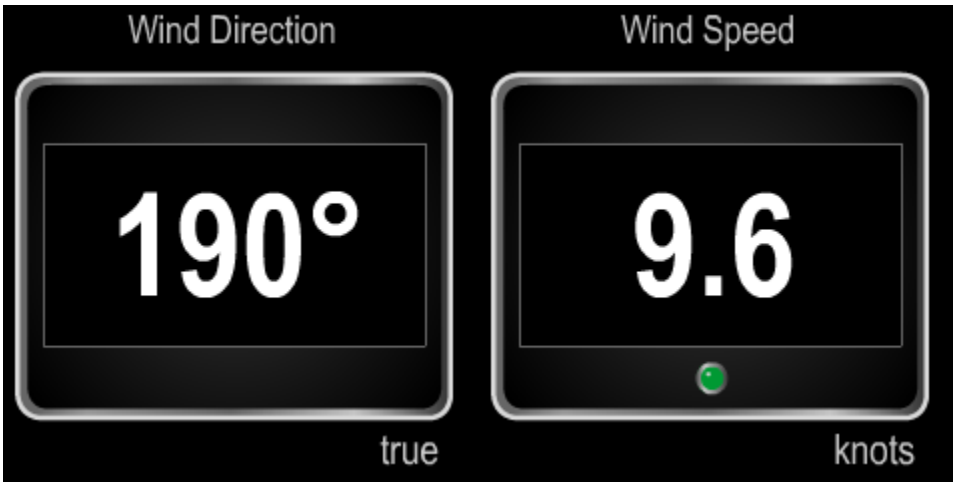


Figure 37 – Digital Component Examples

A Digital component may have an LED appearing at the bottom center of the component. When configuring the component, you may select the ranges of data for which the LED is illuminated green (normal), yellow (warning) or red (fault).

8.5.2 Gauge

The gauge component emulates a mechanical gauge, with a needle whose axis is in the center of the gauge. The range of values displayed by the gauge is user-defined. The gauge has major (large, numbered) and minor (small, unnumbered) tick marks. You can define the number and spacing of these tick marks. You can also define different colors to denote different ranges of values on the gauge component. The colors green (okay), yellow (warning), and red (fault) are available. You can optionally define one green and up to two yellow and two red ranges of values that appear on the gauge scale. The value of the parameter on the scale of the gauge is pointed to by the needle. The value of the parameter also appears in a small digital display in the lower center of the gauge. The units of the parameter measurement appear in the lower right hand corner of the gauge, and the user-defined title is at the top of the gauge display. The gauge components are square in aspect ratio (take the same number of grids in height as they do in width). An example of a gauge component is shown below.

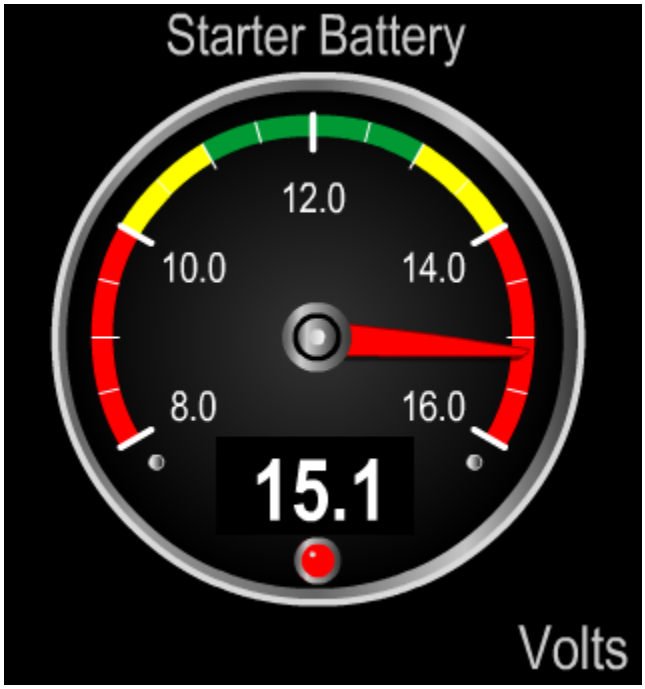


Figure 38 – Gauge Component Example

Gauge components for many parameters have an LED appearing at the bottom center of the component. The color of the LED will reflect the color of the range of values (red, yellow, or green) to which the needle is pointing.

Min / Max markers may be added to a gauge by clicking on a check box in the Component Editor. These marks are associated with the gauge itself. That means that if two gauges are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

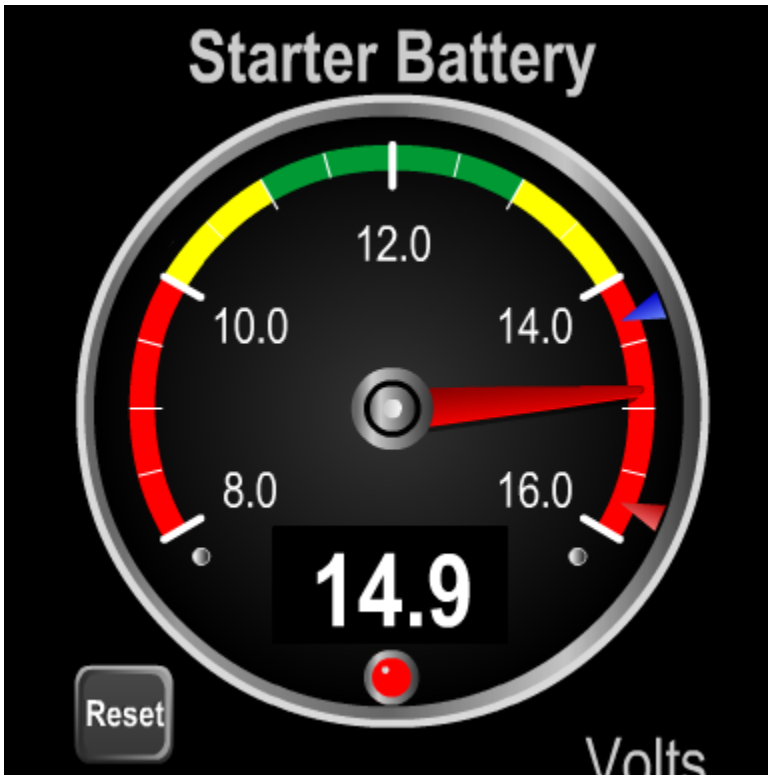


Figure 39 – Gauge with Min Max Markers

The min mark is a blue triangle just outside the color band, and is “pushed” to the left by the needle. The max mark is a red triangle just outside the3 color band and is “pushed” to the right by the needle. Pressing the Reset button will move both marks to the current needle position.

The min and max marks may be enabled and disabled independent of each other. The Reset button is displayed only if either of the marks is enabled.

8.5.3 Bar Graph

The bar graph component is similar in appearance to a mercury or alcohol thermometer or a liquid gauge. It consists of a vertical bar which is filled with color from the bottom of the bar graph to a height which corresponds to the value of the parameter on the scale which appears immediately to the right of the bar. Similar to the gauge component type, a user can define different ranges of parameter values to appear different colors on the component. In the case of the bar graph, the filled region itself will change color between green, yellow, and red depending on which range the parameter value falls into. Depending on the parameter, you may also be able to modify the range of values appearing on the scale of the bar graph. The user-defined title of the bar graph appears vertically-aligned on the left-hand side of the bar graph. The units of the parameter value being displayed appear at the bottom of the bar graph. An example of a bar graph component is shown below.

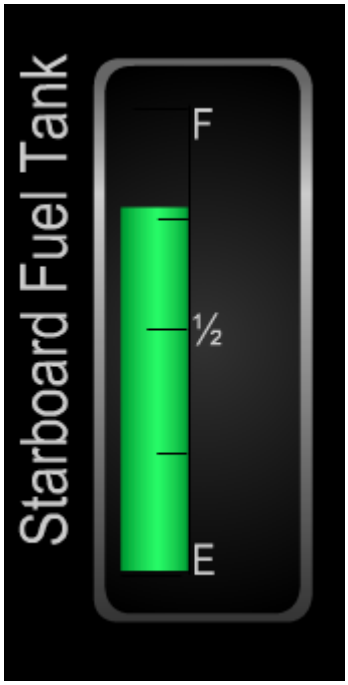


Figure 40 – Bar Graph Component Example

Min / Max markers may be added to a bar graph by clicking on a check box in the Component Editor. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

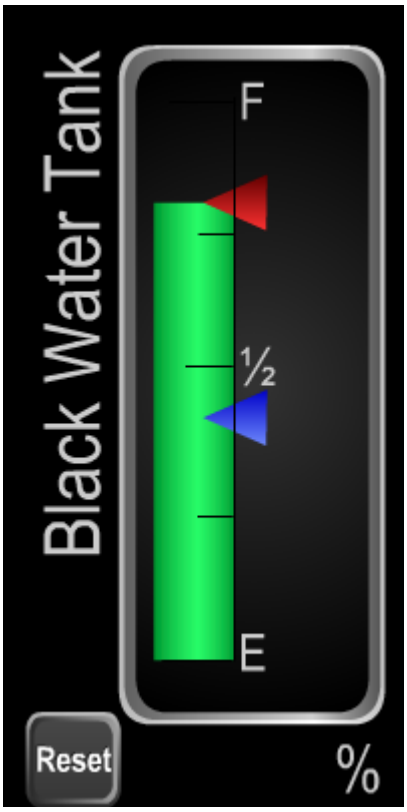


Figure 41 – Bar Graph Example with Min Max Marks

The min mark is a blue triangle to the right of the bar, and is “pushed” upwards by the top of the bar. The max mark is a red triangle just outside the3 color band and is “pulled” downwards by the top of the bar. Pressing the Reset button will move both marks to the current bar position.

The min and max marks may be enabled and disabled independent of each other. The Reset button is displayed only if either of the marks is enabled.

8.5.4 Rocker Switch

The rocker switch emulates a physical rocker switch. When the monitored value is “off”, the left-hand side of the switch, which is labeled “OFF” appears depressed and the switch appears gray in color. When the monitored value is “on”, the right-hand side of the switch, which is labeled “ON”, appears depressed and also lights with a green color as if the switch contained a light or LED. The user-defined title of the switch appears immediately above the rocker switch itself. The rocker switch component is twice as wide as it is tall; for example, a rocker switch that is two grids tall will be four grids wide. An example of a rocker switch component is shown below.

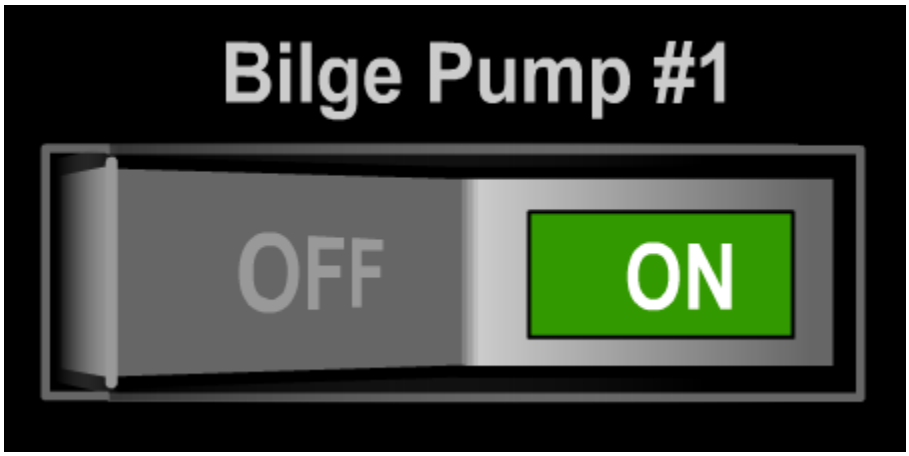


Figure 42 – Rocker Switch Component Example

8.5.5 Indicator Light

The Indicator Light component displays a value which can be either “On”, “Off”, or “Error”. This component is most often used for engine or transmission warning indications. The Indicator component has the appearance of a traditional physical warning light with a red bulb or LED. When the monitored parameter value is not available, the Indicator Light appears dim and gray in color. When the monitored parameter value is in any of the defined states, the Indicator Light component glows with a user-defined color. The user-defined title of the Indicator Light component appears across the middle of the component. The component is four times as wide as it is tall; for example, an Indicator Light component that is one grid tall will be four grids wide. An example of an Indicator Light component is shown below.

Figure 43 – Indicator Light Component Example

8.5.6 Small Indicator Light

The Small Indicator Light component has the same functionality as the Indicator Light component, but is square, and is the only component that does not require a title. It is intended to be placed on a screen with a background, where its position on the background will convey its function to the user. For example the following screen segment with four Small Indicator Lights can show which of the Navigation Lights are powered on.

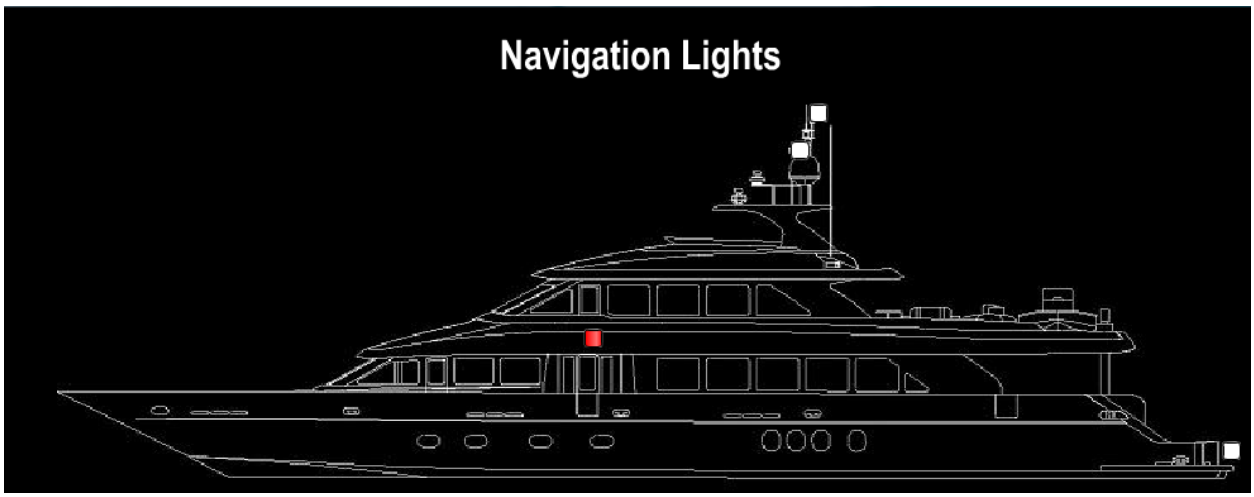


Figure 44 – Small Indicator Light Component Example

8.5.7 Analog Clock

The analog clock component emulates a traditional clock. To the bottom right of the clock, the units will show the time zone offset, am or pm. The label at the top is user-defined. The analog clock component is square in aspect ratio; for example, an analog clock component that is eight grids tall will be eight grids wide. An example of an analog clock component is shown below.

Figure 45 – Analog Clock Component Example

8.5.8 Line Graph / Depth Graph

The line graph component emulates a traditional pen line graph plotter; the depth graph is similar but has the lowest values at the top, and the line is replaced with a solid area below the values.

The line graph and depth graph components plot values of the monitored parameter over time, with the most recent values appearing on the extreme right edge of the graph and older values appearing farther to the left the older they are.

The X-axis scale, denoting the age of the data, appears at the bottom of the line graph and the range is specified below the component. Up and down arrow buttons are used to change the range. The following ranges are selectable:

Range	Sample Rate
1 minute	1 second
4 minutes	1 second
10 minutes	1 second
1 hour	1 minute
4 hours	1 minute
12 hours	1 minute
24 hours	10 minutes
48 hours (2 days)	10 minutes
4 days	10 minutes

The Y-axis scale, denoting the value of the data, appears at the right of the line graph. The maximum and minimum values can be selected in the editor.

The user-defined title of the graph appears at the top of the line graph component, while the units of the measured parameter value appear in the lower right-hand corner of the line graph component. The line graph component is square in aspect ratio; for example, a line graph component that is eight grids tall will be eight grids wide.

An example of a line graph component is shown below.

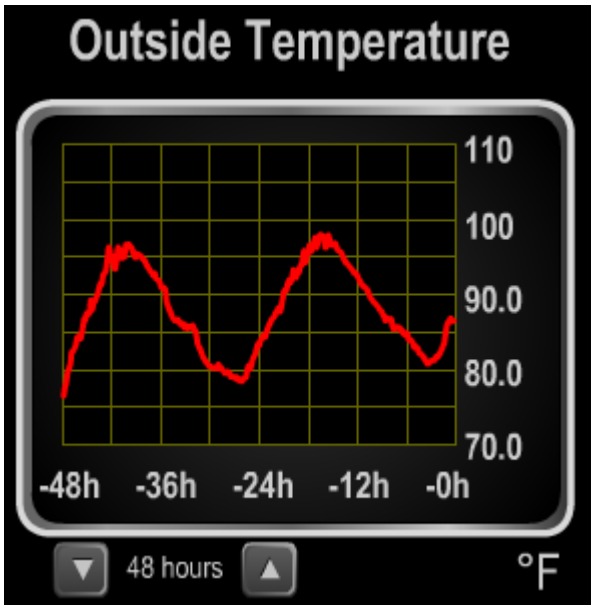


Figure 46 – Line Graph Component Example

And the following figure shows an example of the depth graph.

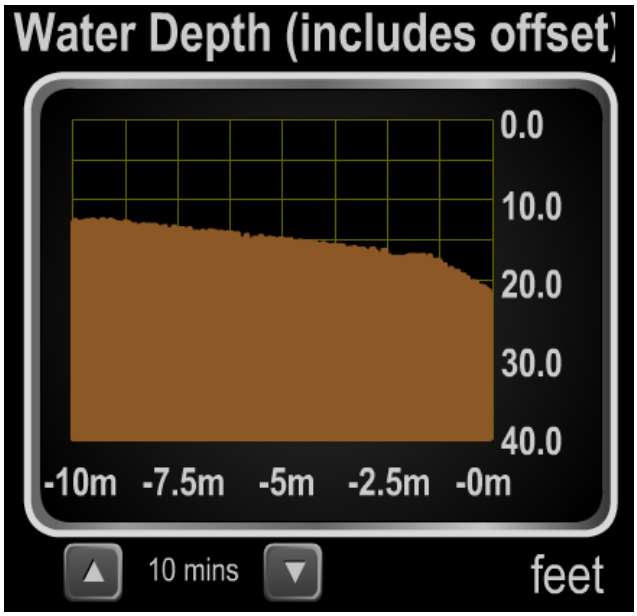


Figure 47 – Depth Graph Component Example

8.5.9 Moon Phase

The moon phase component is a picture of what the moon looks like at the current date and time. In the center of the component is a picture of the moon with the proper percentage lit depending on the moon phase. A user-defined title appears at the top of the component, and a description of the current moon phase (“Full Moon”, “First Quarter”, etc.) appears at the bottom of the moon phase component. The moon phase component is square in aspect ratio; for example, a moon phase component that is four grids wide will be four grids high. An example of a moon phase component is shown below.

Figure 48 – Moon Phase Component Example

8.5.10 North Up Rose

The north up rose component is a compass rose, in which north always appears at the top and a red needle points in the direction indicated by the measured parameter value. The values “N”, “W”, “E”, and “S” appear at the four cardinal compass points, and decimal labels appear every 30 degrees. The user-defined title appears above the compass rose. The north up rose component is square in aspect ratio; for example, a moon phase component that is four grids wide will be four grids high. An example of a north up rose component is shown below.

Figure 49 – North Up Rose Component Example

Min Max Markers may be added to a North Up Rose by clicking on a check box in the Component Editor. The markers show the limits of the needle movement in either direction. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

Figure 50 – North Up Rose with Markers

The marks are two red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Should either mark be “pushed” all the way round to meet the other mark, both marks will lock to the needle to indicate that the max min values are now meaningless. Pressing the Reset button will move both marks to the current needle position and unlock the marks.

The Reset button is displayed only if the marks are enabled.

8.5.11 Course Up Rose

The course up rose component is a compass rose in which a red needle always appears at the top, and the face of the compass rotates so that the red needle points in the direction indicated by the measured parameter value. The values “N”, “W”, “E”, and “S” appear at the four cardinal compass points, and decimal labels appear every 30 degrees. The user-defined title appears above the compass rose. The course up rose component is square in aspect ratio; for example, a moon phase component that is four grids wide will be four grids high. An example of a course up rose component is shown below.

Figure 51 – Course Up Rose Component Example

8.5.12 Cardinal

The cardinal component is similar to the digital component, except that instead of a numeric value, the value (wind direction) is indicated by the abbreviation of the corresponding cardinal compass point (“E”, “NE”, “ENE”, for example). The user-defined title appears at the top of the component. The cardinal component is square in aspect ratio; for example, a moon phase component that is four grids wide will be four grids high. An example of a cardinal component is shown below.

Figure 52 – Cardinal Component Example

8.5.13 Rate of Turn

The rate of turn component is a special type of gauge that displays the rate at which the vessel's heading is changing, either in Degrees per Minute or Degrees per Second. The User-defined title appears at the top, and the units at the bottom right. The value is also displayed in digital form with turns to Port being shown as negative numbers.

An example of the Rate of Turn component is shown below.

Figure 53 – Rate of Turn Meter Component Example

Min Max Markers may be added to a Rate of Turn Meter by clicking on a check box in the Component Editor. The markers show the limits of the needle movement in either direction. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

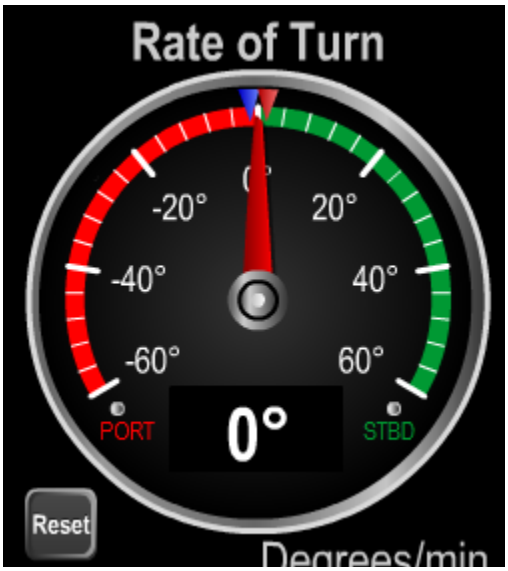


Figure 54 – Rate of Turn Meter with Min Max Marks

The marks are blue and red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Pressing the Reset button will move both marks to the current needle position.

The Reset button is displayed only if the marks are enabled.

8.5.14 GPS Status

The GPS Status component shows the following data about the selected GPS receiver:

- GPS operating mode (2D, 3D, DGPS)
- Satellite signal strength (up to 12 satellites)
- Satellite azimuth and elevation (up to 12 satellites)
- Position
- HDOP (Horizontal dilution of precision)
- Time
- Date
- Accuracy of position calculation

The satellite that is being used as the SBAS satellite is highlighted in red.

A user-defined title appears at the top of the GPS status component. The GPS status component is square in aspect ratio; for example, a GPS status component that is four grids wide will be four grids high. An example of a GPS status component is shown below.

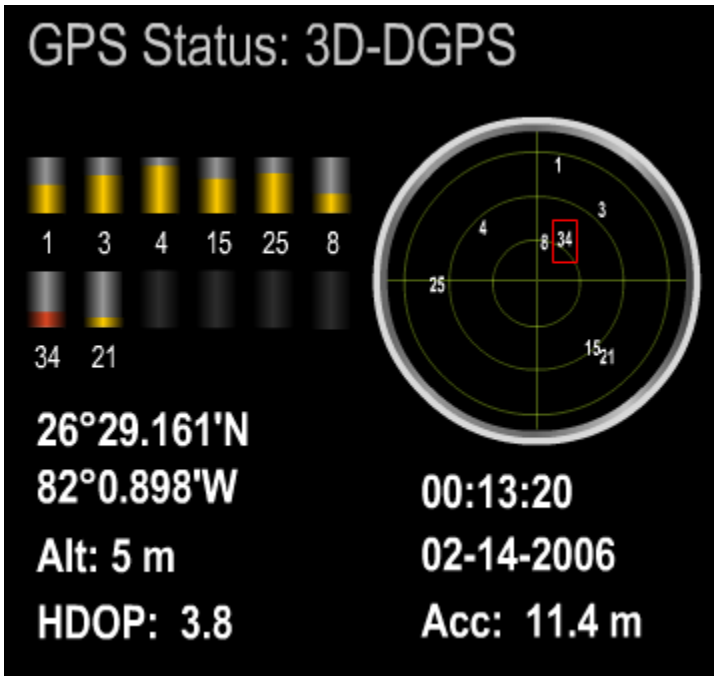


Figure 55 – GPS Status Component Example

8.5.15 Rudder Angle / Order

The rudder angle component appears like a mechanical rudder angle gauge. There is a red needle in the center of the component and a semicircular scale appearing at the bottom component. The needle is oriented such that it points the same direction as the rudder if you were standing above it looking down while facing the bow of the vessel.

A grey triangle under the needle shows the order given to the rudder by an autopilot.

The range of values displayed by the gauge is user-defined. The gauge has major tick marks. You can define the number and spacing of these tick marks within the component editor. An example of a rudder angle component is shown below.

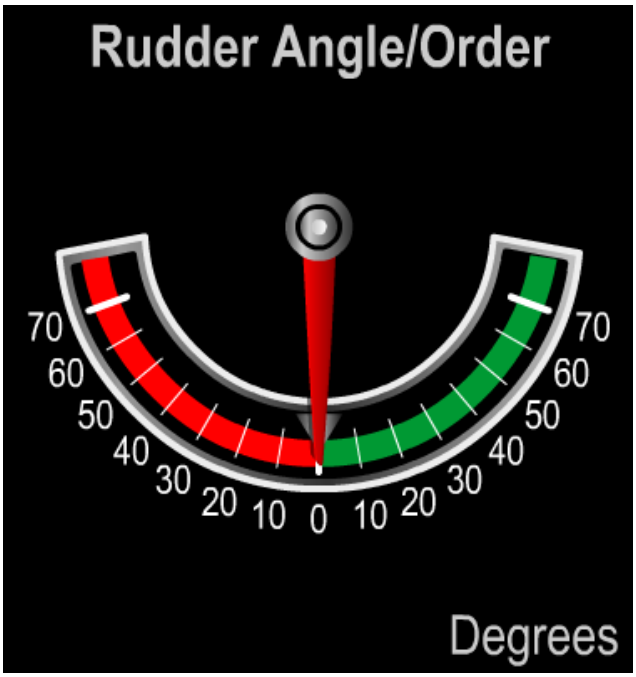


Figure 56 – Rudder Angle Component Example

Min Max Markers may be added to a Rudder Angle Component by clicking on a check box in the Component Editor. The markers show the limits of the needle movement in either direction. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

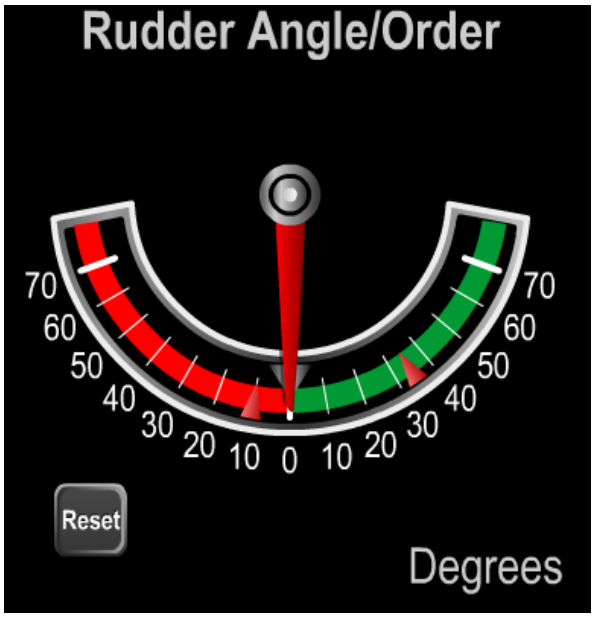


Figure 57 – Rudder Angle with Min Max Marks

The marks are two red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Pressing the Reset button will move both marks to the current needle position.

The Reset button is displayed only if the marks are enabled.

8.5.16 Inclinometer

The inclinometer is used to display the ship’s roll, as reported from the compass. It is calibrated so that the red needle always points down. The User-defined title appears at the top, and the units at the bottom right. The component is square. An example of an inclinometer is shown below.

Figure 58 – Inclinometer Component Example

Min Max Markers may be added to an Inclinometer Component by clicking on a check box in the Component Editor. The markers show the limits of the needle movement in either direction. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

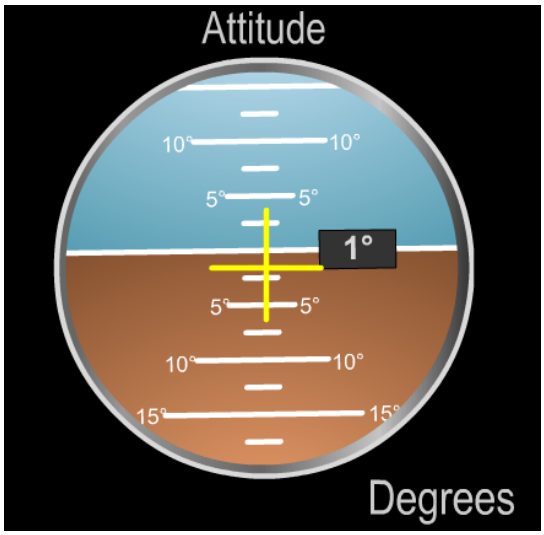
Figure 59 – Inclinometer with Min Max Marks

The marks are two red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Pressing the Reset button will move both marks to the current needle position.

The Reset button is displayed only if the marks are enabled.

8.5.17 Attitude Indicator

The Attitude Indicator or Artificial Horizon is used to display a combination of the ship's pitch and roll motion. The blue and brown background will rotate to show the roll, which is also displayed digitally. The background also moves up and down to show the pitch. The User-defined title appears at the top, and the units at the bottom right. The component is square. An example of an attitude indicator component is shown below.



8.5.18 Anchor Watch

The Anchor Watch Component is a special type of gauge that graphically displays the parameters of the Anchor Watch Alert (see 9.3.6.4.8). A button on the gauge allows the alert to be set or cleared from the control, and when set will enter the current vessel position into the Anchor Watch Alert. As you drop anchor, push the button, and you have an anchor watch in place.

An example of the Anchor Watch Component, when the Alert is disabled is shown below.

Figure 60 – Disabled Anchor Alert Example

Note that the area inside the circle is blank, and the circle is grey. The text on the button is “Set”, and when the button is pressed the Alert will be enabled and the current GPS position transferred to the Alert reference position.

In the following figure the Anchor Alert has been enabled. We can now see an anchor symbol in the middle of the circle, the text on the button has been changed to “Reset”, and the position and heading of the vessel can be seen as a red ship symbol. The radius of the Alert is displayed to the bottom right of the control. If the graphic is referenced to magnetic north, the word “mag” is displayed above the radius, otherwise the word “true” is displayed. Graphically, the circle represents the radius of the alert.

Figure 61 – Enabled Anchor Alert Example

If heading is not available to orient the ship symbol, the ship symbol is replaced by a red disk.

Figure 62 – Anchor Alert without Heading

If the vessel moves outside the circle, then the control changes to the following:

Figure 63 – Anchor Alert with Alarm

Note that the anchor and circle have been colored red, and the symbol has been changed to an arrow showing the direction of drift. The actions specified by the alert will be initiated after the programmed delay.

If Alerts are not licensed (i.e. in the standard edition of N2KView) the words “Not Licensed” will displayed in the center of the circle.

8.5.19 Wind Angle

The wind angle component is similar in appearance to traditional mechanical wind angle gauges. An outline of a boat's hull appears in the center of the component, and a red needle points directly into the wind. The gauge is labeled in increments to 30 degrees with intermediate tick marks at 10 degree intervals, from 0 degrees at the top to 180 degrees at the bottom on both port and starboard sides. The areas on the scale between 20 degrees and 60 degrees are colored red on the port side and green on the starboard side. The wind speed appears in a small digital display in the lower part of the circular gauge. A user-defined title appears at the top of the component, and the units of the wind speed measurement appear in the lower-right hand corner of the component. The wind angle component is square in aspect ratio; that is, a wind angle component that is four grids high will also be four grids tall. An example of a wind angle component is shown below.

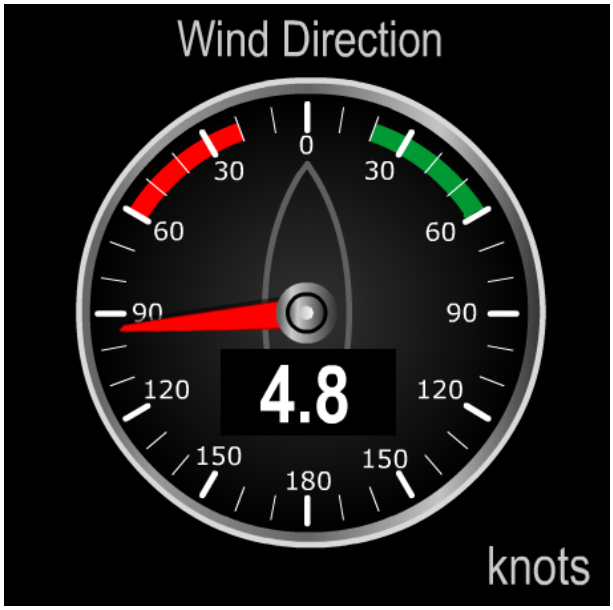


Figure 64 – Wind Angle Component Example

Min Max Markers may be added to a Wind Angle Component by clicking on a check box in the Component Editor. The markers show the limits of the needle movement in either direction. These marks are associated with the control itself. That means that if two controls are displaying the same data, each will maintain its own values for the min max marks, and they can be reset independently.

Figure 65 – Wind Angle Component with Min Max Marks

The marks are two red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Should either mark be “pushed” all the way round to meet the other mark, both marks will lock to the needle to indicate that the max min values are now meaningless. Pressing the Reset button will move both marks to the current needle position and unlock the marks.

The Reset button is displayed only if the marks are enabled.

A second wind angle component with an expanded scale at the bow of the boat is also available for sailboats. This is the Close Angle component, and is shown below.

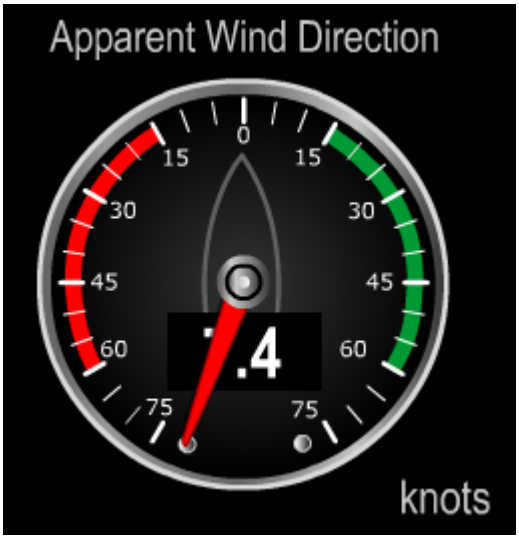


Figure 66 – Wind Close Angle Component Example

Min Max Markers may be added to a Close Angle Component by clicking on a check box in the Component Editor.

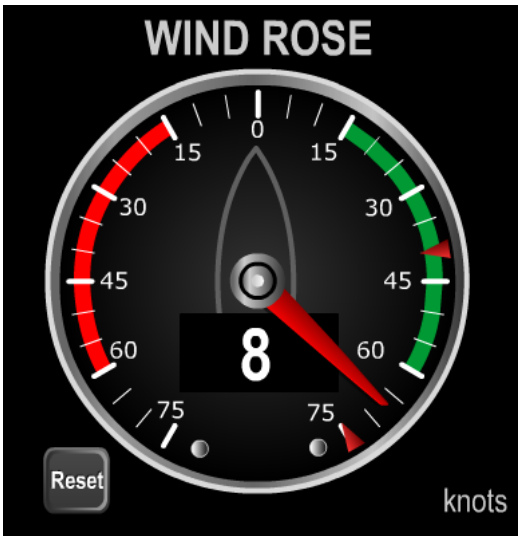


Figure 67 – Close Angle Component with Min Max Marks

The marks are two red triangles just inside the gauge perimeter, and are “pushed” left or right by the needle. Pressing the Reset button will move both marks to the current needle position.

The Reset button is displayed only if the marks are enabled.

8.5.20 Video

The Video Component is used to display video from IP Cameras. The component is square, and has a user defined label at the top.

If the camera supports Pan, Tilt and Zoom, buttons under the video display will be enabled.

Video components are only available in the Platinum version of N2KView.

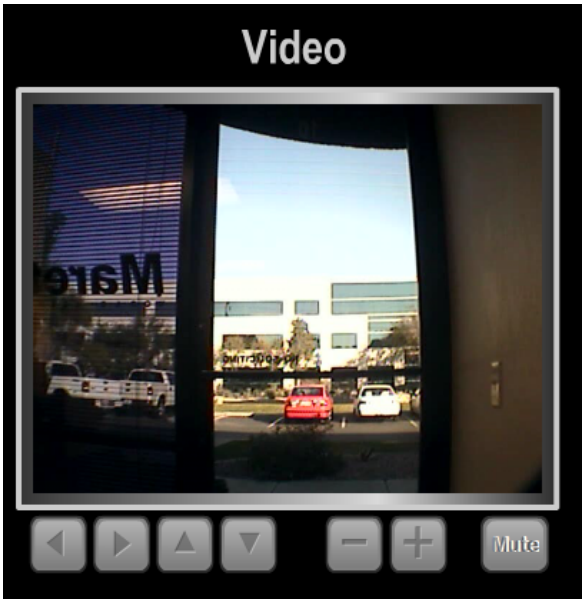


Figure 68 - Video Component Example

8.6 Available Data Types

The N2KView system organizes the various available data types into a two-level system of data Categories and data Types. Each data category consists of a number of closely-related data types.

8.6.1 AC Bus

8.6.1.1 AC Bus Average Frequency

Displays the average frequency of all AC phases on an AC bus.

Component Types: Gauge, Digital

Instances: 253

Units: Hertz

8.6.1.2 AC Bus Average Line-Line Voltage

Displays the average line to line RMS voltage of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.3 AC Bus Average Line-Neutral Voltage

Displays the average line to neutral RMS voltage of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.4 AC Phase A Frequency

Displays the frequency of phase A on an AC bus.

Component Types: Gauge, Digital

Instances: 253

Units: Hertz

8.6.1.5 AC Bus Phase A-Phase B Voltage

Displays the RMS voltage between phase A and phase B of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.6 AC Bus Phase A Line-Neutral Voltage

Displays the RMS voltage between phase A and neutral of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.7 AC Phase B Frequency

Displays the frequency of phase B on an AC bus.

Component Types: Gauge, Digital

Instances: 253

Units: Hertz

8.6.1.8 AC Bus Phase B-Phase C Voltage

Displays the RMS voltage between phase B and phase C of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.9 AC Bus Phase B Line-Neutral Voltage

Displays the RMS voltage between phase B and neutral of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.10 AC Phase C Frequency

Displays the frequency of phase C on an AC bus.

Component Types: Gauge, Digital

Instances: 253

Units: Hertz

8.6.1.11 AC Bus Phase C-Phase A Voltage

Displays the RMS voltage between phase C and phase A of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.1.12 AC Bus Phase C Line-Neutral Voltage

Displays the RMS voltage between phase C and neutral of an AC bus.

Component Types: Gauge, Digital

Units: Volts RMS

Instances: 253

8.6.2 AC Generator

8.6.2.1 AC Generator Average Current

Displays the average AC RMS electrical current being sourced from a generator on all phases.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.2.2 AC Generator Average Frequency

Displays the average frequency of the AC power from a generator on all phases.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.3 AC Generator Average Line-Line Voltage

Displays the average line to line RMS voltage of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.4 AC Generator Average Line-Neutral Voltage

Displays the average line to neutral RMS voltage of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.5 AC Generator Phase A Apparent Power

Displays the Apparent Power being drawn on Phase A from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.2.6 AC Generator Phase A Current

Displays the AC RMS electrical current being sourced from a generator on phase A.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.2.7 AC Generator Phase A Frequency

Displays the frequency of the AC power from a generator on phase A.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.8 AC Generator Phase A-Phase B Voltage

Displays the voltage between Phase A and Phase B of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.9 AC Generator Phase A-Neutral Voltage

Displays the phase A to neutral RMS voltage of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.10 AC Generator Phase A Power Factor

Displays the Power Factor of phase A of the AC power from a generator.

Component Types: Digital

Units: %

Instances: 253

8.6.2.11 AC Generator Phase A Reactive Power

Displays the Reactive Power being drawn on Phase A from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.2.12 AC Generator Phase A Real Power

Displays the Real Power being drawn on Phase A from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.2.13 AC Generator Phase B Apparent Power

Displays the Apparent Power being drawn on Phase B from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.2.14 AC Generator Phase B Current

Displays the AC RMS electrical current being sourced from a generator on phase B.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.2.15 AC Generator Phase B Frequency

Displays the frequency of the AC power from a generator on phase B.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.16 AC Generator Phase B-Phase C Voltage

Displays the voltage between Phase B and Phase C of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.17 AC Generator Phase B-Neutral Voltage

Displays the phase B to neutral RMS voltage of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.18 AC Generator Phase B Power Factor

Displays the Power Factor of phase B of the AC power from a generator.

Component Types: Digital

Units: %

Instances: 253

8.6.2.19 AC Generator Phase B Reactive Power

Displays the Reactive Power being drawn on Phase B from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.2.20 AC Generator Phase B Real Power

Displays the Real Power being drawn on Phase B from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.2.21 AC Generator Phase C Apparent Power

Displays the Apparent Power being drawn on Phase C from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.2.22 AC Generator Phase C Current

Displays the AC RMS electrical current being sourced from a generator on phase C.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.2.23 AC Generator Phase C Frequency

Displays the frequency of the AC power from a generator on phase C.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.24 AC Generator Phase C-Phase A Voltage

Displays the voltage between Phase C and Phase A of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.25 AC Generator Phase C-Neutral Voltage

Displays the phase C to neutral RMS voltage of the AC power from a generator.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

Maretron Components: J2K100 or ACM100

8.6.2.26 AC Generator Phase C Power Factor

Displays the Power Factor of phase C of the AC power from a generator.

Component Types: Digital

Units: %

Instances: 253

8.6.2.27 AC Generator Phase C Reactive Power

Displays the Reactive Power being drawn on Phase C from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.2.28 AC Generator Phase C Real Power

Displays the Real Power being drawn on Phase C from a generator.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.3 AC Utility

8.6.3.1 AC Utility Average Current

Displays the average RMS electrical current being sourced from an AC Utility on all phases.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.3.2 AC Utility Average Frequency

Displays the average frequency of an AC Utility on all phases.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.3 AC Utility Average Line-Line Voltage

Displays the average line to line RMS voltage of an AC Utility on all phases.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.4 AC Generator Average Line-Neutral Voltage

Displays the average line to neutral RMS voltage of an AC Utility on all phases.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.5 AC Utility Phase A Apparent Power

Displays the Apparent Power being drawn on Phase A from an AC Utility

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.3.6 AC Utility Phase A Current

Displays the RMS electrical current being sourced from an AC Utility on phase A.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.3.7 AC Utility Phase A Frequency

Displays the frequency of an AC Utility on phase A.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.8 AC Utility Phase A-Phase B Voltage

Displays the voltage between Phase A and Phase B of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.9 AC Utility Phase A-Neutral Voltage

Displays the phase A to neutral RMS voltage of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.10 AC Utility Phase A Power Factor

Displays the Power Factor of phase A of an AC Utility.

Component Types: Digital

Units: %

Instances: 253

8.6.3.11 AC Utility Phase A Reactive Power

Displays the Reactive Power being drawn on Phase A from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.3.12 AC Utility Phase A Real Power

Displays the Real Power being drawn on Phase A from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.3.13 AC Utility Phase B Apparent Power

Displays the Apparent Power being drawn on Phase B from an AC Utility

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.3.14 AC Utility Phase B Current

Displays the RMS electrical current being sourced from an AC Utility on phase B.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.3.15 AC Utility Phase B Frequency

Displays the frequency of an AC Utility on phase B.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.16 AC Utility Phase B-Phase C Voltage

Displays the voltage between Phase B and Phase C of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.17 AC Utility Phase B-Neutral Voltage

Displays the phase B to neutral RMS voltage of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.18 AC Utility Phase B Power Factor

Displays the Power Factor of phase B of an AC Utility.

Component Types: Digital

Units: %

Instances: 253

8.6.3.19 AC Utility Phase B Reactive Power

Displays the Reactive Power being drawn on Phase B from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.3.20 AC Utility Phase B Real Power

Displays the Real Power being drawn on Phase B from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.3.21 AC Utility Phase C Apparent Power

Displays the Apparent Power being drawn on Phase A from an AC Utility

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.3.22 AC Utility Phase C Current

Displays the RMS electrical current being sourced from an AC Utility on phase C.

Component Types: Gauge, Digital

Instances: 253

Units: Amperes

8.6.3.23 AC Utility Phase C Frequency

Displays the frequency of an AC Utility on phase C.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.24 AC Utility Phase C-Phase A Voltage

Displays the voltage between Phase C and Phase A of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.25 AC Utility Phase C-Neutral Voltage

Displays the phase C to neutral RMS voltage of an AC Utility.

Component Types: Gauge, Digital

Units: Hertz

Instances: 253

8.6.3.26 AC Utility Phase C Power Factor

Displays the Power Factor of phase C of an AC Utility.

Component Types: Digital

Units: %

Instances: 253

8.6.3.27 AC Utility Phase C Reactive Power

Displays the Reactive Power being drawn on Phase C from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.3.28 AC Utility Phase C Real Power

Displays the Real Power being drawn on Phase C from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.3.29 AC Utility Total Apparent Power

Displays the Total Apparent Power being drawn on all phases from an AC Utility

Component Types: Gauge, Digital

Instances: 253

Units: VA

8.6.3.30 AC Utility Total Power Factor

Displays the Total Power Factor of all phases of an AC Utility.

Component Types: Digital

Units: %

Instances: 253

8.6.3.31 AC Utility Total Reactive Power

Displays the Total Reactive Power being drawn on all phases from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: VAr

8.6.3.32 AC Utility Total Real Power

Displays the Total Real Power being drawn on all phases from an AC Utility.

Component Types: Gauge, Digital

Instances: 253

Units: Watts / kilowatts

8.6.3.33 AC Utility Total kWh Export

Displays the Total kilowatt-Hours exported to an AC Utility.

Component Types: Digital

Instances: 253

Units: kilowatt-hours

8.6.3.34 AC Utility Total kWh Import

Displays the Total kilowatt-Hours imported from an AC Utility.

Component Types: Digital

Instances: 253

Units: kilowatt-hours

8.6.4 Anchor

8.6.4.1 Watch

The Anchor Watch Parameter is a view into the Anchor Watch Alert (see 9.3.6.4.8).

Component Types: Anchor Watch

Units: n/a

Instances: n/a

Maretron Components: GPS100, SSC200

8.6.5 DC Power

8.6.5.1 Battery State of Charge

Displays the current energy in the battery as a percentage of its total capacity

Component Types: Gauge, Bar Graph, Digital

Units: %

Instances: 253

Maretron Components: DCM100

8.6.5.2 Battery Temperature

Displays the battery case temperature

Component Types: Gauge, Bar Graph, Digital

Units: Degrees Centigrade, Degrees Fahrenheit

Instances: 253

Maretron Components: DCM100

8.6.5.3 Battery Time Remaining

Displays the time remaining that the battery can continue to operate at its current load

Component Types: Digital

Units: Hours and Minutes

Instances: 253

Maretron Components: DCM100

8.6.5.4 DC Current

Displays the electrical current being sourced to/from the battery

Component Types: Gauge, Bar Graph, Digital

Units: Amperes

Instances: 253

Maretron Components: DCM100

8.6.5.5 DC Power

Displays the DC power currently being provided by the battery

Component Types: Gauge, Bar Graph, Digital

Units: Watts / kilowatts

Instances: 16

Maretron Components: DCM100

8.6.5.6 DC Voltage

Displays the voltage measured at the battery

Component Types: Gauge, Digital

Units: Volts

Instances: 253

Maretron Components: DCM100

8.6.6 Depth

8.6.6.1 Transducer Offset

Displays the offset being used by a depth transducer. Positive values represent distance from transducer to water line and negative values represent distance from the transducer to the keel.

Component Types: Digital

Units: feet, fathoms, meters

Instances: 253

Maretron Components: DST100

8.6.6.2 Water Below Transducer

Displays the current reading from a depth transducer.

Component Types: Digital

Units: feet, fathoms, meters

Instances: 253

Maretron Components: DST100

8.6.6.3 Water Depth

Displays the current reading from a depth transducer plus the Transducer offset.

Component Types: Digital

Units: feet, fathoms, meters

Instances: 253

Maretron Components: DST100

8.6.7 Electrical Distribution

8.6.7.1 Circuit Breaker

Displays whether the specified circuit breaker is open or closed

Component Types: Circuit Breaker

Instances: 253

Switches (Per Instance): 28

8.6.8 Engine

8.6.8.1 Engine Alternator Potential

Displays the electrical power supply voltage measured at the engine

Component Types:	Gauge, Bar Graph, Digital
Units:	Volts
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.2 Engine Boost Pressure

Displays the boost pressure of a supercharger or turbocharger.

Component Types:	Gauge, Bar Graph, Digital
Units:	kilopascals, bars, pounds/square inch
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.3 Engine Exhaust Gas Temperature

Displays the temperature of the engine's exhaust gases.

Component Types:	Gauge, Bar Graph, Digital
Units:	Degrees Centigrade, Degrees Fahrenheit
Instances:	253
Maretron Components:	TMP100

8.6.8.4 Engine Fuel Pressure

Displays the pressure of the fuel for the engine.

Component Types:	Gauge, Bar Graph, Digital
Units:	kilopascals, bars, pounds/square inch
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.5 Engine Fuel Rate

Displays the rate of fuel consumption for the engine

Component Types:	Gauge, Bar Graph, Digital
Units:	imp gal/hr, Liter/hr, gal/hr
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.6 Engine Hours

Displays the number of hours of operation reported by the engine

Component Types:	Digital
Units:	Hours
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.7 Engine Oil Pressure

Displays the engine's oil pressure.

Component Types: Gauge, Bar Graph, Digital

Units: kilopascals, bars, pounds/square inch

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.8 Engine Oil Temperature

Displays the engine's oil temperature.

Component Types: Gauge, Bar Graph, Digital

Units: Degrees Centigrade, Degrees Fahrenheit

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.9 Engine Tachometer

Displays the rotational speed of the engine.

Component Types: Gauge, Bar Graph, Digital

Units: revolutions/minute

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.10 Engine Tilt/Trim

Displays the tilt or trim of the drive

Component Types: Gauge, Bar Graph, Digital

Units: percent

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.11 Engine Water Pressure

Displays the engine's water pressure

Component Types: Gauge, Bar Graph, Digital

Units: kilopascals, bars, pounds/square inch

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.12 Engine Water Temperature

Displays the engine's water temperature

Component Types: Gauge, Bar Graph, Digital

Units: Degrees Centigrade, Degrees Fahrenheit

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.13 Fuel Economy

Displays the engine's fuel usage

Component Types: Digital

Units: kilometers/imp gal, kilometers/liter, kilometers/gal, nautical miles/imp gal, nautical miles/liter, nautical miles/gal, statute miles/imp gal, statute miles/liter, statute miles/gal

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.14 Percent Engine Load

Displays the current load on the engine as a percentage of its rated load

Component Types: Gauge, Bar Graph, Digital

Units: percent

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.8.15 Percent Engine Torque

Displays the current torque being provided by the engine as a percentage of its rated torque

Component Types: Gauge, Bar Graph, Digital

Units: percent

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9 Engine Warning

8.6.9.1 Charge Indicator

Generally indicates a fault in the engine's charging system. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.2 Check Engine

Generally indicates some condition in the engine that requires investigation. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.3 EGR System

Generally indicates a fault in the exhaust gas recirculation (EGR) system. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.4 Engine Comm Error

Generally indicates some condition relative to engine communications that requires investigation. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.5 Engine Cranking

Generally indicates that the starter on the engine is engaged. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.6 Engine Emergency Stop Mode

Generally indicates that the engine was stopped using an emergency stop button. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.7 Engine Shutting Down

Generally indicates that the engine is in the process of shutting down. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.8 High Boost Pressure

Generally indicates that the supercharger/turbocharger boost pressure has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.9 Low Coolant Level

Generally indicates that the level of coolant has fallen below some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.10 Low Fuel Pressure

Generally indicates that the fuel pressure has fallen below some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.11 Low Oil Level

Generally indicates that the oil level has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.12 Low Oil Pressure

Generally indicates that the oil pressure has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.13 Low System Voltage

Generally indicates that the system voltage has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.14 Maintenance Needed

Generally indicates that the engine is in need of maintenance. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.15 Neutral Start Protect

Generally indicates that the engine will not start because the transmission is not in neutral. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.16 Over Temperature

Generally indicates that the engine's temperature has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.17 Power Reduction

Generally indicates that the engine is operating in a reduced-power mode due to some fault condition. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.18 Preheat Indicator

Generally indicates that the cylinder preheaters are active. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.19 Rev Limit Exceeded

Generally indicates that the engine's RPM has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.20 Sub/Secondary Throttle

Generally indicates that the engine has fallen back to a secondary throttle due to some fault detected in the primary throttle. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.21 Throttle Position Sensor

Generally indicates a fault in the throttle position sensor. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.22 Warning Level 1

Generally indicates some engine-specific warning condition. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.23 Warning Level 2

Generally indicates some engine-specific warning condition. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.24 Water Flow

Generally indicates a lack of water flow in cooling system. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.9.25 Water In Fuel

Generally indicates that water has been detected in the engine's fuel. Please consult the engine manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

8.6.10 Environment

8.6.10.1 Barometer

Displays the atmospheric (barometric) pressure

Component Types: Bar Graph, Line Graph, Digital

Units: bars, millibars, inches mercury, kilopascals, millimeters mercury

Instances: 253

Maretron Components: WSO100

8.6.10.2 Dew Point

Displays the current dew point based on air temperature and humidity

Component Types: Bar Graph, Digital

Units: degrees Centigrade, degrees Fahrenheit

Maretron Components: WSO100

8.6.10.3 Heat Index

Displays the current heat index based on air temperature and humidity

Component Types: Bar Graph, Digital

Units: degrees Centigrade, degrees Fahrenheit

Instances: 253

Maretron Components: WSO100

8.6.10.4 Humidity

Displays the relative humidity

Component Types: Bar Graph, Digital

Units: Percent

Instances: 253

Source: Inside, Outside

Maretron Components: WSO100

8.6.10.5 Moon Phase

Displays the phase of the moon at the current time and date

Component Types: Moon Phase Display

Maretron Components: GPS100

8.6.10.6 Sunrise

Displays the local time of sunrise for the current day and position

Component Types: Digital

Units: 12 hour; 24 hour

Maretron Components: GPS100

Time Zone: Selectable

8.6.10.7 Sunset

Displays the local time of sunset for the current day and position

Component Types: Digital

Units: 12 hour; 24 hour

Maretron Components: GPS100

Time Zone: Selectable

8.6.10.8 Temperature

Displays the temperature from a source.

Component Types: Gauge, Bar Graph, Digital

Units: degrees Centigrade, degrees Fahrenheit

Instances: 253

Source: Sea, Outside, Inside, Engine Room, Main Cabin, Live Well, Bait Well, Refrigeration, Heating System, Dew Point, Wind Chill, Apparent, Wind Chill, Theoretical, Heat Index, Freezer

Maretron Components: WSO100, TMP100

8.6.10.9 Twilight AM

Displays the UTC time of nautical twilight before sunrise for the current day

Component Types: Digital

Units: 12 hour; 24 hour

Time Zone: Selectable

Maretron Components: GPS100

8.6.10.10 Twilight PM

Displays the local time of nautical twilight after sunset for the current day

Component Types: Digital

Units: 12 hour; 24 hour

Time Zone: Selectable

Maretron Components: GPS100

8.6.10.11 Wind Chill

Displays the current wind chill based on outside air temperature and wind speed

Component Types: Digital

Units: Degrees Centigrade, Degrees Fahrenheit

Maretron Components: WSO100

8.6.11 Fuel Management

Maretron fuel management products are designed to be accurate and reliable; however they should be used only as aids for fuel management and not as a replacement for traditional fuel management techniques. BEWARE: Conditions can quickly change that drastically effect time and distance to empty.

You should not use the fuel management data types unless you fully understand all the parameters associated with fuel management. All fuel tanks and all engines must be included when setting up N2KVIew plus there must be accurate fuel rate sensors installed on the vessel and accurate speed information in order for N2KView to properly display fuel management information. You should also note that fuel levels may contain significant error if the boat is not sitting level in the water (i.e., sailboat heeled over or a power boat riding bow up won't necessarily report the correct amount of fuel). Even when setup correctly, N2KView should be used only as an aid and not the sole source for fuel management information.

NOTE: Fuel Management is operational only in the Platinum Edition software. In the Standard Edition software, you may create fuel management components, but they will display "Not Licensed" instead of data values.

The Distance to Empty and Time to Empty measurements are calculated based on the conditions that are prevalent at the time. Changes in wind and current can drastically change the Distance to Empty and Time to Empty measurements that N2KView calculates and displays.

For example, if you are motoring 100 miles out to sea with the current, at the end of the 100 miles, N2KView might display that you have 120 miles before you run out of fuel. If you then turn around and start heading back to land, this time against the current, the Distance to Empty reading may change to 80 miles.

Therefore, you must always keep in mind the direction and speed of prevailing winds and currents. You must always remain aware that N2KView makes Distance to Empty and Time to Empty calculations assuming that your course and speed, and the prevailing winds and currents, and any other factors that may affect fuel consumption will not change.

Because of these extremely important considerations of which you must be aware before using the fuel management features of N2KView, the "**Fuel Management Warning**" screen is displayed on the following occasions: 1) every time you create a component in the fuel management category, and 2) the first time after starting N2KView that you open a favorites page containing a fuel management component.

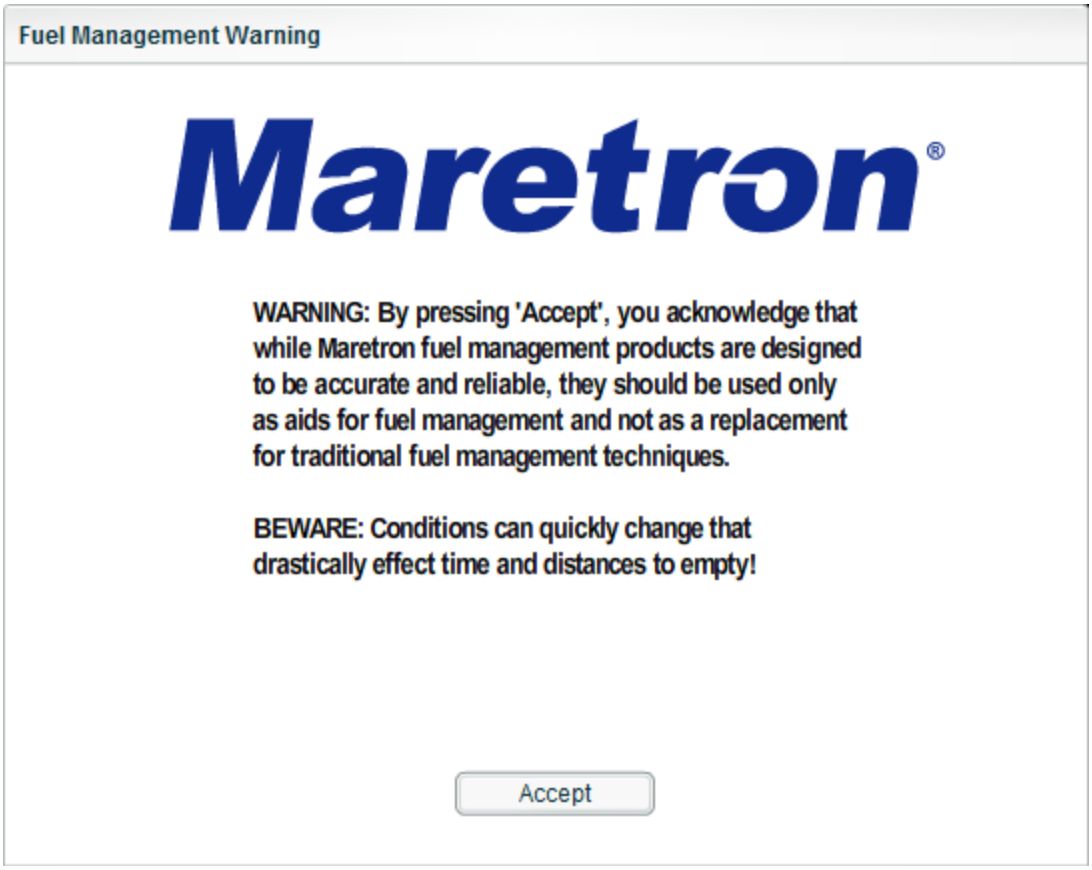

Fuel Management Warning
Maretron
WARNING: By pressing 'Accept', you acknowledge that while Maretron fuel management products are designed to be accurate and reliable, they should be used only as aids for fuel management and not as a replacement for traditional fuel management techniques.
BEWARE: Conditions can quickly change that drastically effect time and distances to empty!
Accept

Figure 69 – Fuel Management Warning Screen

8.6.11.1 Distance to Empty

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

This component displays the distance before the selected engines use all fuel in the selected fuel tanks assuming that all factors affecting fuel consumption remain constant.

Component Types: Digital

Units: kilometers, nautical miles, statute miles

Maretron Components: J2K100 or EMS100, TLA100, and GPS100

8.6.11.2 Engine Total Fuel Rate

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

This component displays the total of the fuel consumption per unit time of all selected engines.

Component Types: Digital

Units: imp gal/hour, liter/hour, gal/hour

Maretron Components: J2K100

8.6.11.3 Time to Empty

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

This component displays the time before the selected engines use all fuel in the selected fuel tanks assuming that all factors affecting fuel consumption remain constant.

Component Types: Digital

Units: hours

Maretron Components: J2K100 or EMS100, and TLA100

8.6.11.4 Total Fuel Economy

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Displays the distance traveled per unit of fuel consumed by all selected engines.

Component Types: Digital

Units: kilometers/imp gal, kilometers/liter, kilometers/gal, nautical miles/imp gal, nautical miles/liter, nautical miles/gal, statute miles/imp gal, statute miles/liter, statute miles/gal

Maretron Components: J2K100

8.6.11.5 Total Fuel Remaining

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

This component displays the total amount of fuel remaining in all selected fuel tanks.

Component Types: Digital, Gauge

Units: imp gal, liter, gal

Maretron Components: TLA100

8.6.12 GPS

8.6.12.1 Course Over Ground

Displays the current course over ground

Component Types: North Up Rose, Course Up Rose, Cardinal, Digital

Units: Degrees True, Degrees Magnetic (depends on Global Settings in Units Setup tab)

Instances: 253

Maretron Components: GPS100

8.6.12.2 GPS Status

Displays the current operating mode and status of the currently selected GPS received (please see Section 8.5.14 on page 109 for more details)

Component Types: GPS Status

Instances: 253

Maretron Components: GPS100

8.6.12.3 Lat/Lon

Displays the current latitude and longitude of the vessel

Component Types: Digital

Units: Latitude and Longitude is Degrees, Minutes and fractions of a minute.

Instances: 253

Maretron Components: GPS100

8.6.12.4 Speed Over Ground

Displays the current speed over ground

Component Types: Gauge, Digital

Units	kilometers/hour, knots, miles/hour
Instances:	253
Maretron Components:	GPS100

8.6.13 Heading

8.6.13.1 Heading

Displays the current heading of the vessel (the direction the vessel is pointing) relative to true or magnetic north depending on the unit setting of the heading parameter (see Section 8.4.5.2.2 on page 74).

Component Types:	North Up Rose, Course Up Rose, Cardinal, Digital
Units:	Degrees True, Degrees Magnetic (depends on Global Settings in Units Setup tab)
Instances:	253
Maretron Components:	SSC200

8.6.13.2 Rate of Turn

Displays the rate at which the heading is changing.

Component Types:	Digital, Gauge
Units:	Degrees / Minute, Degrees / Second
Instances:	253
Maretron Components:	SSC200

8.6.13.3 Variation

Displays the magnetic variation used to convert between true and magnetic headings

Component Types:	Digital
Units:	degrees
Instances:	253
Maretron Components:	SSC200

8.6.14 Indicator

8.6.14.1 Status

This component displays the status of a switch on the system.

Component Types:	Indicator Light, Small Indicator Light
Instances:	253
Switches (Per Instance):	28
Maretron Components:	SIM100, RIM100

8.6.15 Navigation

N2KView is not a primary navigator; that is, it does not provide means for entering and storing waypoint and route data. N2KView can receive information on the current leg of the voyage from a primary navigation device (such as a chart plotter or PC with navigation software and NMEA 2000 interface) and display the following information:

8.6.15.1 Bearing Origin to Destination

Displays the direction from the origin waypoint to the destination waypoint

Component Types: Digital

Units: True, Magnetic (depends on Global Settings in Units Setup tab)

8.6.15.2 Bearing to Waypoint

Displays the bearing to the destination waypoint

Component Types: Digital

Units: True, Magnetic (depends on Global Settings in Units Setup tab)

8.6.15.3 COG

Displays the current course over ground

Component Types: North Up Rose, Course Up Rose, Cardinal, Digital

Units: Degrees True, Degrees Magnetic (depends on Global Settings in Units Setup tab)

Maretron Components: SSC200

8.6.15.4 Cross Track Error

Displays the cross-track error (minimum distance from the boat to the programmed route)

Component Types: Digital

Units: kilometers, nautical miles, statute miles

8.6.15.5 Distance to Waypoint

Displays the distance to the destination waypoint

Component Types: Digital

Units: kilometers, nautical miles, statute miles

8.6.15.6 ETA Date

Displays the estimated date of arrival at the destination waypoint

Component Types: Digital

Units: DD-MM-YYYY, DD-MMM-YYYY, MM-DD-YYYY, MMM-DD-YYYY

8.6.15.7 ETA

Displays the estimated time of arrival at the destination waypoint

Component Types: Digital

Units: 12 hours, 24 hours

8.6.15.8 Lat/Lon

Displays the current latitude and longitude of the vessel

Component Types: Digital

Maretron Components: GPS100

8.6.15.9 Speed Over Ground

Displays the current speed over ground of the vessel

Component Types: Gauge, Digital

Units: kilometers/hour, knots, miles/hour

Maretron Components: GPS100

8.6.15.10 Time to Go

Displays the estimated time remaining until arrival at the destination waypoint assuming current speed and course remain constant

Component Types: Digital

Units: hh:mm:ss, hh:mm

8.6.15.11 VMG to Waypoint

Displays the speed at which the distance to the waypoint is decreasing

Component Types: Digital

Units: kilometers/hour, nautical miles/hour, miles/hour

8.6.16 Rudder

8.6.16.1 Rudder Angle

Displays the angle of the vessel's rudder as indicated by the rudder sensor

Component Types: Rudder Angle, Digital

Units: Degrees

Instances: 253

Maretron Components: RAA100

8.6.16.2 Rudder Angle/Order

Displays the angle of the vessel's rudder as indicated by the rudder sensor, as well as the angle to which a vessel's rudder has been commanded be an autopilot or steering mechanism.

Component Types: Rudder Angle

Units: Degrees

Instances: 253

Maretron Components: RAA100 (Angle only)

8.6.16.3 Rudder Order

Displays the angle to which a vessel's rudder has been commanded be an autopilot or steering mechanism.

Component Types: Digital

Units: Degrees

Instances: 253

8.6.17 Speed/Distance

8.6.17.1 Speed Over Ground

Displays the speed over ground of the vessel (relative to the earth, not the water)

Component Types: Gauge, Digital

Units: kilometers/hour, knots, miles/hour

Instances: 253

Maretron Components: GPS100

8.6.17.2 Speed Through Water

Displays the speed of the boat relative to the water

Component Types: Gauge, Digital

Units: kilometers/hour, knots, miles/hour

Instances: 253

Maretron Components: DST100

8.6.17.3 Total Log

Displays the total distance traveled by the vessel since the log indicator was installed

Component Types: Digital

Units: kilometers, nautical miles, statute miles

Maretron Components: DST100

8.6.17.4 Trip Log

Displays the distance traveled by the vessel since the trip indication of the log indicator was last reset

Component Types: Digital

Units: kilometers, nautical miles, statute miles

Maretron Components: DST100

8.6.18 Tank

8.6.18.1 Tank Capacity

Displays the fluid capacity of the tank

Component Types: Digital

Units: imp gal, Liter, gal

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.18.2 Tank Level

Displays the level of fluid in the tank as a percentage of its capacity

Component Types: Gauge, Bar Graph, Digital

Units: percent

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.18.3 Tank Remaining

Displays the amount of fluid in the tank

Component Types: Digital

Units: imp gal, Liter, gal

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.18.4 Total Tank Capacity

Displays the total fluid capacity of all selected tanks

Component Types: Digital

Units: imp gal, Liter, gal

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.18.5 Total Tank Level

Displays the level of fluid in all selected tanks as a percentage of their total capacity

Component Types: Gauge, Bar Graph, Digital

Units: percent

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.18.6 Total Tank Remaining

Displays the total amount of fluid in all of the selected tanks

Component Types: Digital

Units: imp gal, Liter, gal

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

8.6.19 Text

8.6.19.1 Text

This component allows the creation of a single line of fixed, user-defined text on the screen.

Component Types: Text

8.6.20 Time/Date

8.6.20.1 Date

Displays the current date. The time zone may be entered as part of the component configuration, or it may be set to reference the local time offset (see Section 8.4.5.2.1 on page 74 for details on how to set the local time offset)

Component Types: Digital

Units: DD-MM-YYYY, DD-MMM-YYYY, MM-DD-YYYY, MMM-DD-YYYY

Maretron Components: GPS100

8.6.20.2 Local Time Offset

Displays the local time offset as set in the Units Setup Page.

Component Types: Digital

Units: Hours : Minutes

8.6.20.3 Moon Phase

Displays the phase of the moon at the current time and location

Component Types: Moon Phase Display

Maretron Components: GPS100

8.6.20.4 Sunrise

Displays the time of sunrise for the current day and position. The time zone may be entered as part of the component configuration

Component Types: Digital

Units: 12 hour, 24 hour

Maretron Components: GPS100

8.6.20.5 Sunset

Displays the time of sunset for the current day and position. The time zone may be entered as part of the component configuration

Component Types: Digital

Units: 12 hour, 24 hour

Maretron Components: GPS100

8.6.20.6 Time

Displays the current time. The time zone may be entered as part of the component configuration.

Component Types: Digital

Units: 12 hour, 24 hour

Maretron Components: GPS100

8.6.20.7 Twilight AM

Displays the time of nautical twilight before sunrise for the current day and position. The time zone may be entered as part of the component configuration.

Component Types: Digital

Units: 12 hour, 24 hour

Maretron Components: GPS100

8.6.20.8 Twilight PM

Displays the time of nautical twilight after sunset for the current day and position. The time zone may be entered as part of the component configuration.

Component Types: Digital

Units: 12 hour, 24 hour

Maretron Components: GPS100

8.6.21 Transmission

8.6.21.1 Gear

Displays the current gear of the transmission (forward, neutral, or reverse)

Display: Digital

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.21.2 Transmission Oil Pressure

Displays the pressure of the oil in the transmission

Component Types: Gauge, Digital

Units: kilopascals, bars, pounds/square inch

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.21.3 Transmission Oil Temperature

Displays the temperature of the oil in the transmission

Component Types: Gauge, Bar Graph, Digital

Units: Degrees Centigrade, Degrees Fahrenheit

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.22 Transmission Warning

8.6.22.1 Check Transmission

Generally indicates some fault condition in the transmission that requires attention. Please consult the transmission manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.22.2 Low Oil Level

Generally indicates that the oil level in the transmission has fallen below some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.22.3 Low Oil Pressure

Generally indicates that the oil pressure in the transmission has fallen below some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.22.4 Over Temperature

Generally indicates that the operating temperature of the transmission exceeds some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.22.5 Sail Drive

Generally indicates that the sail driver mode in the transmission has been activated. Please consult the transmission manufacturer's documentation for details.

Component Types: Warning Light

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

8.6.23 Vessel

8.6.23.1 Attitude

Displays the pitch of the vessel (rotation about the horizontal axis perpendicular to the ship's keel) and the roll (rotation about the horizontal axis parallel to the ship's keel).

Component Types: Attitude Indicator

Units: Degrees

Instances: 253

Maretron Components: SSC200

8.6.23.2 Pitch

Displays the pitch of the vessel (rotation about the horizontal axis perpendicular to the ship's keel)

Component Types: Digital

Units: Degrees

Instances: 253

Maretron Components: SSC200

8.6.23.3 Roll

Displays the roll of the vessel (rotation about the horizontal axis parallel to the ship's keel)

Component Types: Digital, Inclinometer

Units: Degrees

Instances: 253

Maretron Components: SSC200

8.6.23.4 Trim Tabs

Displays the position of the vessel's trim tabs

Component Types:	Trim Bar Graph
Source:	Port, Starboard

8.6.24 Video

8.6.24.1 Video

Video is not received on the NMEA2000 bus. It is either received on the Ethernet Bus, or directly from a camera connected to the USB port of the computer.

Component Types:	Video. In the Demo version only, an additional option is provided to look at a pre-recorded video clip.
Sources:	Camera Sources are defined in the Camera Setup Screen, and are selected from a list presented in the Component Editor.

8.6.25 Wind

There are several different types of wind measurements. They are described in the following section.

8.6.25.1 Wind Direction

Component Types (Apparent): Wind Angle, Close Wind Angle

Component Types (Ground): Digital, Cardinal, North Up Rose

Component Types (True): Wind Angle

References: Apparent, Ground, True

Units: beaufort, kilometers/hour, nautical miles/hour, miles/hour

Maretron Components (Apparent): WSO100

Maretron Components (Ground): WSO100 and GPS100 and SSC200

Maretron Components (True, Water Referenced): WSO100 and DST100

Maretron Components (True, Ground Referenced): WSO100 and GPS100 and SSC200

8.6.25.1.1 Apparent

Displays the angle and speed of the wind relative to the vessel center line as it appears to an observer on the deck of a moving or stationary vessel (does not subtract out the speed of the vessel)

8.6.25.1.2 Ground

Displays the angle and speed of the wind relative to true or magnetic south (depending on the unit setting of the ‘heading” parameter, see Section 8.4.5.2.2 on page 74 for details) relative to a stationary observer, calculated using heading, course over ground (COG) and speed over ground (SOG)

8.6.25.1.3 True

Displays the angle and speed of the wind relative to the vessel centerline (vessel’s speed is subtracted from apparent wind direction), calculated using speed through water (STW) or speed over ground (SOG) depending on the unit setting of the “Wind

True Vessel Referenced" parameter under "Global Settings" on the "Units" screen. (see Section 8.4.5.2 on page 74 for details).

8.6.25.2 Wind Speed

References: Apparent, Ground, True

Component Types (Apparent): Digital, Wind Angle

Component Types (Ground): Digital

Component Types (True): Digital, Wind Angle

Units: Beaufort, kilometers/hour, nautical miles/hour, miles/hour

Maretron Components (Apparent): WSO100

Maretron Components (Ground): WSO100, GPS100 and SSC200

Maretron Components (True, Water Referenced): WSO100 and DST100

Maretron Components (True, Ground Referenced): WSO100 and GPS100 and SSC200

9 Alerts

9.1 Overview

The Platinum edition of N2KView contains a comprehensive alerts capability. You may configure many different types of alerts for virtually all parameters that you can view with N2KView. You can configure an alert to be issued when a parameter value crosses the threshold that you choose.

N2KView alerts work with multiple instances of N2KView Platinum Clients. You can define alerts as being either local (appearing only on the N2KView Client on which you defined them) of global (appearing on all N2KView Platinum Clients on the network). A global alert can be accepted or cancelled by any N2KView Platinum Client on the network.

When an alert occurs, it is displayed on the Alert Status Bar, which is always visible in a reserved area at the bottom of the N2KView window. You may click on the alert in the Alert Ticker to take action on it, or you may switch to the Alerts tab to view more detailed information about the cause of the alert. N2KView can also perform actions when an alert becomes active, such as sounding an annunciator or sending an e-mail message (which can be used to send text messages).

9.2 Alert Concepts

9.2.1 Alert Types

An *alert* is a signal to a user that there is either an alarm or warning condition requiring user intervention.

There are two classes of alerts, which are distinguished by their severity:

- *Alarm* – An alarm is a type of alert announcing a condition requiring immediate attention or user intervention. Alarms are shown in red, and always appear to the left of warnings in the Alert Ticker and above warnings on the Alert Screen.

- *Warning* – A warning is a type of alert announcing a condition requiring non-immediate attention for precautionary reasons. Warnings are shown in yellow, and always appear to the right of Alarms in the Alert Ticker and below alarms on the Alert Status Screen.

9.2.2 Alert Terminology

The following alert terminology, consistent with International Maritime Organization Code on Alarms and Indicators, is used in N2KView.

- *Accept* – The user action of acknowledging the existence of an alert. Alerts are only accepted when they are Active
- *Cancel* – The user action of removing an alert from the list of displayed alerts. Alerts may only be cancelled if the condition causing the alert has been removed.
- *Clear* – An alert is cleared when the condition causing the alert is removed.
- *Trigger* – An alert is triggered when the condition monitored by the alert is met.

9.2.3 Alert Priority

Each alert has a priority which you can define, ranging from 0 to 9999 with 0 the highest or most important priority and 9999 the lowest or least important priority. Alerts can be ordered many different ways on the Alerts Screen. For example, ordering by priority is done by clicking on the column header entitled Priority or listing the log entry chronologically is done by clicking on the column header entitled time. Data can be sorted on any column by clicking the column heading.

9.2.4 Vessel Alert Operating Modes

You can configure alerts to operate in one or more fixed operating modes, 1) disabled, 2) moored, 3) underway, or 4) anchored. This allows you to easily enable or disable groups of individual alarms depending on the vessel's operating mode. You can set the vessel alert operating mode under the Alerts Setup tab.

- *Disabled* – All alerts are disabled. This mode should be used when the vessel is in storage, drydock, or otherwise out of operation.
- *Moored* - This mode is used when the vessel is secured to a structure that is permanently attached to the ground like a pier, wharf, dock, or mooring buoy.
- *Underway* - This mode is used when the vessel is not moored nor anchored.
- *Anchored* - This mode is used when the vessel is secured to the sea floor with an anchor.

9.2.5 Alert States

Alerts exist in one of five states.

- *Disabled* - A Disabled Alert is an alarm or warning that has yet to be enabled or activated. In this state, no action will be taken regardless of the value of the monitored parameter. A Disabled Alert May be enabled in which case it transitions to the Inactive state

- *Inactive* - An Inactive alert is an alarm or warning that has been enabled, but the condition causing the alert is not present. If the alert condition becomes true, the alert will become an *Active Alert*. An Inactive alert may be disabled, which causes it to transition to the *Disabled* state. New alerts are created in the Inactive State.

- *Active* - An Active alert is an alarm or warning where the condition to trigger the alert has been met, and is still present and the operator has not accepted the alert. An active alert is indicated by a flashing indicator within the Alert Status Bar and on the Alerts Screen. Also, annunciators that are programmed to sound when this alert is active will be sounding during this state, and any e-mail messages that are programmed to be sent for this alert will be sent when this state is entered. An active alert can be accepted by the user (causing it to become an *Accepted Alert*) or disabled by the user (causing it to become a *Disabled Alert*). If the condition causing the alert is rectified, the alert transitions to the Awaiting Cancel state.

- *Accepted* - An Accepted alert is an alarm or warning which was Active and has been accepted by the user. An Accepted alert is indicated by a solid indicator in the Alert Status Bar and a solid color on the Alert Status Screen; annunciators are silenced. Normally, an alert is a serious matter that requires immediate attention and requires a deliberate attempt to remove the condition that caused the alert. Sometimes it isn't practical to immediately remove the condition that caused the alert; accepting the alert will silence the annunciators while the appropriate user action is being taken.

  To prevent an alert that has accepted by the user from being forgotten, an accepted alert will transition back to being Active after a period of time set by the user. If the condition causing the alert is rectified (cleared), the alert will transition to the Inactive state.

  You may disable the alert at this time, causing it to become a Disabled Alert,

- *Awaiting Cancel* - An Alert in the Awaiting Cancel state is an alert where the condition that caused the alarm or warning has been removed without the alert being accepted while it was Active. To avoid such alerts from being missed by the user, the alert is required to be cancelled. You may cancel the alert at this time, causing it to become an *Inactive Alert*, or you may disable the alert, causing it to become a *Disabled Alert*. Should the condition trigger the alert again, the alert will transition back to the Active state, incrementing a counter which is displayed on the Alert Status Screen in the "What Happened" column.

9.2.5.1 Available Alert Classes

N2KView has several classes of alerts. Different alert classes are available depending on the parameter for which an alert is being configured.

- *Low Alert* – The alert will become active if the monitored value drops below the value in this alert for longer than the time specified in the Set Delay field.
- *High Alert* – The alert will become active if the monitored value rises above the value specified in this alert for longer than the time specified in the Set Delay field.
- *Data Unavailable Alert* – The alert will become active if the monitored value is not received, or is received but with a value of “Data Not Available”, for longer than the time specified in the Set Delay field.
- *On Alert* – The alert will become active if the monitored switch or flag becomes “ON” for longer than the time specified in the Set Delay field.
- *Off Alert* – The alert will become active if the monitored switch or flag becomes “OFF” for longer than the time specified in the Set Delay field.
- *Tripped Alert* – The alert will become active if the monitored circuit breaker becomes “Tripped” for longer than the time specified in the Set Delay field.
- *Course Alert* – The alert will become active if the monitored course differs from the Reference Direction by more than the Offset COG Set Point for longer than the time specified in the Set Delay field.
- *GPS Quality Alert* – The alert will become active if the GPS Quality drops below the level set in the GPS Quality Alert Set field for longer than the time specified in the Set Delay field.
- *Outside Radius Alert* – The alert will become active if the distance between the current GPS position and the Reference Latitude and Longitude rises above the value in the Outside Radius Alert Set field for longer than the time specified in the Set Delay field.
- *Inside Radius Alert* - The alert will become active if the distance between the current GPS position and the Reference Latitude and Longitude falls below the value in the Outside Radius Alert Set field for longer than the time specified in the Set Delay field.
- *Direction Alert* – The alert will become active if the monitored course differs from the Reference Direction by more than the Offset Wind Direction Set Point for longer than the time specified in the Set Delay field.
- *Timer Alert* – The alert will become active when the time reaches the time specified in the Alarm Time field, and thereafter after the intervals specified in the Repeat Interval field.

9.3 Viewing and Configuring Alerts

This section describes the different ways in which alerts may be viewed, and also the ways in which they can be created, deleted, and edited.

9.3.1 The Alert Status Bar

The Alert Status Bar is a small part of the overall N2KView screen that is always present on Platinum versions of N2KView and shown along the entire bottom of the screen (the Alert Status Bar is even present in authoring mode). The Alert Status Bar shows the description and location of each alert within a text box. In addition, the vessel's operating mode appears at the extreme right-hand side of the Alert Status Bar.

The alerts are displayed in a left to right order with more important alerts to the left. Generally, the order is: Active and Accepted Alarms, Active and Accepted Warnings, Awaiting Cancel Alarms, and Awaiting Cancel Warnings. Within these groups alerts are ordered in increasing priority number.

An example of the Alert Status Bar is shown below.

Figure 70 - Alert Status Bar

Should more alerts be displayed than can fit on the Alert Status Bar, the border of the Alert Status Bar will change to a flashing red, and series of dots on the right are displayed.

Figure 71 – Over Full Alert Status Bar

Active Alarms appear as flashing red indicators. Clicking on this indicator will cause the alarm to become an Accepted Alarm, and the indicator will change to solid red.

Accepted Alarms appear as solid red indicators.

Awaiting Cancel Alarms appear as dark indicators with a red border and an "x" on the right hand side of the indicator. When you click on this indicator, the alarm will become Inactive and will be removed from the Alert Status Bar.

Inactive Alarms and **Disabled Alarms** do not appear on the Alert Status Bar.

Active Warnings appear as flashing yellow indicators. Clicking on this indicator will cause the warning to become an Accepted Warning and the indicator will change to solid yellow.

Accepted Warnings appear as solid yellow indicators.

Awaiting Cancel Warnings appear as dark indicators with a yellow border and an “x” on the right hand side of the indicator. When you click on this indicator, the alert will become inactive and the indicator will disappear from the Alert Status Bar.

Inactive Warnings and **Disabled Warnings** do not appear on the Alert Status Bar.

9.3.2 Alerts Tab

The Alerts Tab appears along the top of the N2KView main screen just as any other favorite screen tab except that the Alerts Tab always appears in the upper left tab position. In the Platinum version of N2KView, pressing or left clicking on the Alerts Tab causes the Alerts Screen to appear.

Figure 72 - Alerts Tab (Platinum)

Alerts are not licensed in the Standard version of N2kView. The Alerts Tab will appear semi-transparent, and will not respond to pressing or clicking.

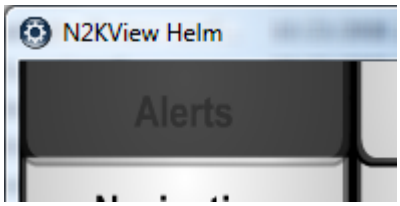


Figure 73 - Alerts Tab (Standard)

9.3.3 Alert Status Screen

The Alert Status Screen is a tabular listing of alerts in log form where you can view all pending and past alerts. Extensive sorting capabilities allow you to quickly find alerts of interest. An example of the Alert Status Screen is shown below.

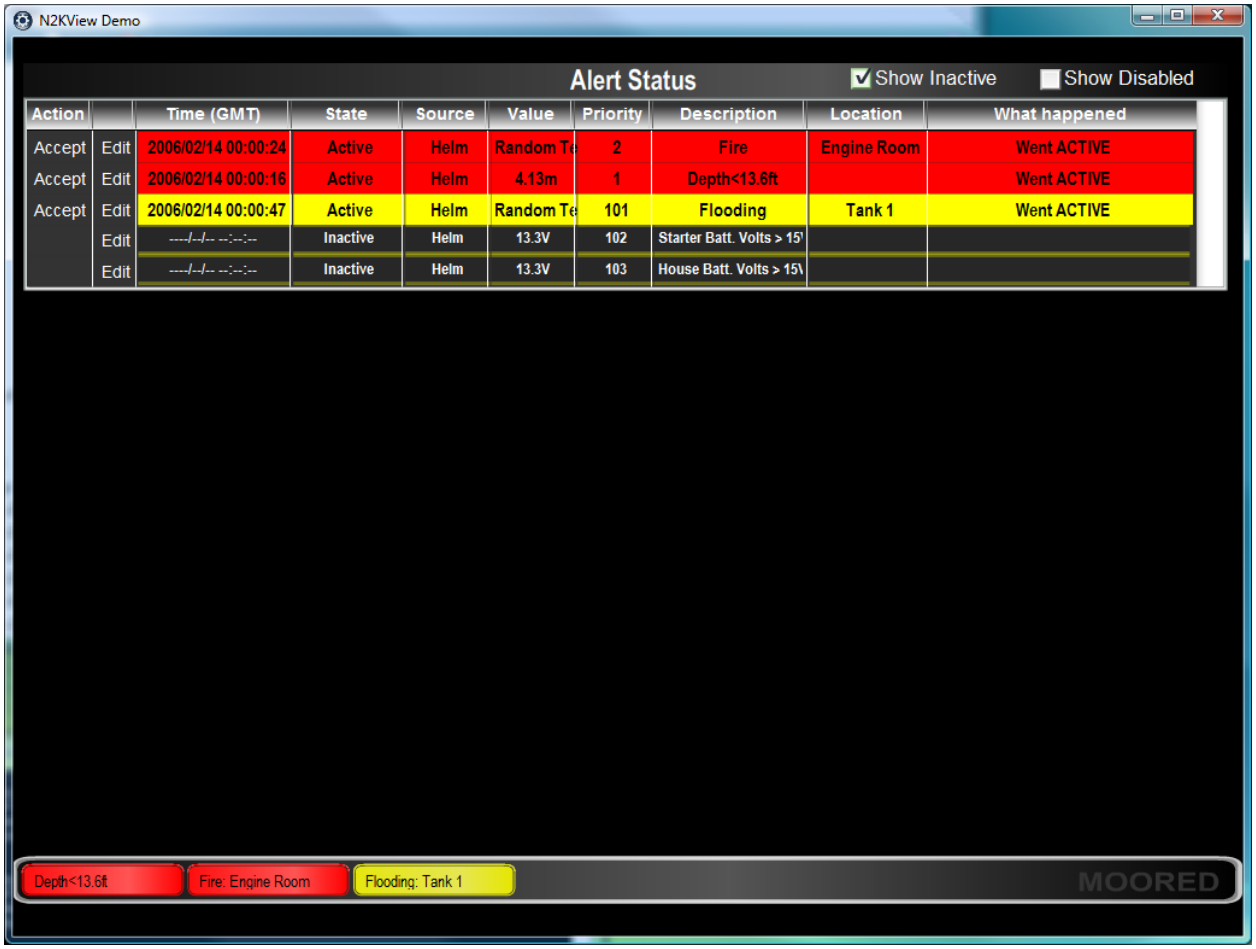


Figure 74 – Alert Status Screen

The Alert Status Screen consists of a table with several rows. Each row of the table describes an alert. Be default, Inactive Alerts and Disabled alerts are not shown. You may check the box labeled “Show Inactive” or “Show Disabled” at the top of the Alert Status Screen to show inactive and disabled alerts, respectively, in addition to the alerts normally shown.

The columns of the table may be resized by “grabbing” the bar to the right of the column heading and dragging it to the desired position. Pressing or clicking on the column heading will sort the entries in the table in either increasing or decreasing order of the column chosen. A small arrow to the right of the column heading shows which column contains the sort order, and whether it is increasing or decreasing. An up arrow shows

that the column is sorted in increasing order. You cannot sort on the Action Column, the Edit Column or the What Happened column.

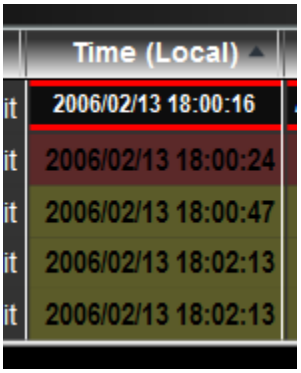


Figure 75 – Column Sort Indicator

The rows in the table are colored and flash or remain solid in color according to the state of the alert described by the row. Please refer to Section 9.3.1 for a description of how the appearance of the row changes with the alert state.

Action – This column shows what action you may take for the alert. If the alert is Active, the entry in this column will read “Accept”. Clicking on the word “Accept” will cause the alert to become an “Accepted Alert”. If the alert is an Accepted Alert, there will be no entry in this column. If the alert is an Awaiting Cancel Alert, the entry in this column will read “Cancel”. Clicking on the word “Cancel” will cause the alert to become an Inactive Alert, and it will disappear from the table unless the “Show Inactive” box is checked at the top of the screen. If the alert is Inactive or Disabled, there will be no entry in this column.

Edit – If the alert is defined in this instance of N2KView, the word “Edit” will appear in this column. Pressing on or clicking the word “Edit” will cause the Alert Editor dialog to appear and will allow you to change the configuration of this alarm. If a password has been set in the Password Dialog (see 8.4.3), then you will be requested to enter this password to gain access to the Alert Edit Dialog.

Time – The time column will contain the date and time at which the alert first went Active.

State – The entry in this column will describe the state of the alert. Please refer to Section 9.2.5 for a description of the different alert states.

Source – The entry in this column reflects the Label of the N2KView instance (see section 8.4.4.2) on which the alert is configured. You may accept or cancel alerts from any Platinum N2KView instance, but you may only change the configuration of an alert on the instance of N2KView on which it was originally configured.

Value – The entry in this column shows the value of the monitored parameter in real time. For time alerts, this column shows the time remaining; for distance alerts, this column show the distance between the current boat position and the reference position.

Priority – The entry in this column describes the priority you assigned to the alert. “0” is the highest priority, and “9999” is the lowest. Sorting the table on priority will place the alarms above the warnings, and then sort in priority order within these groups.

Description – The entry in this column reflects the contents of the Description field in the Alerts Editor for this alert.

Location – The entry in this column reflects the contents of the Location field in the Alerts Editor for this alert.

What happened – The entry in this column summarizes the most recent change in the alert status.

9.3.4 Alerts Setup Tab

The Alerts Setup Tab appears along the side of the N2KView main screen just as any other administrative tab. Pressing or left clicking on the Alerts Setup Tab causes the Alerts Setup Dialog to appear.

Alerts are not licensed in the Standard version of N2kView. The Alerts Setup Tab will appear semi-transparent, and will not respond to pressing or clicking.

9.3.5 Alerts Setup Dialog

The Alerts Setup Dialog allows you to create new alerts or delete or re-configure existing alerts. Also, you may change the operating mode of the vessel, enabling you to

easily enable and disable groups of alerts.

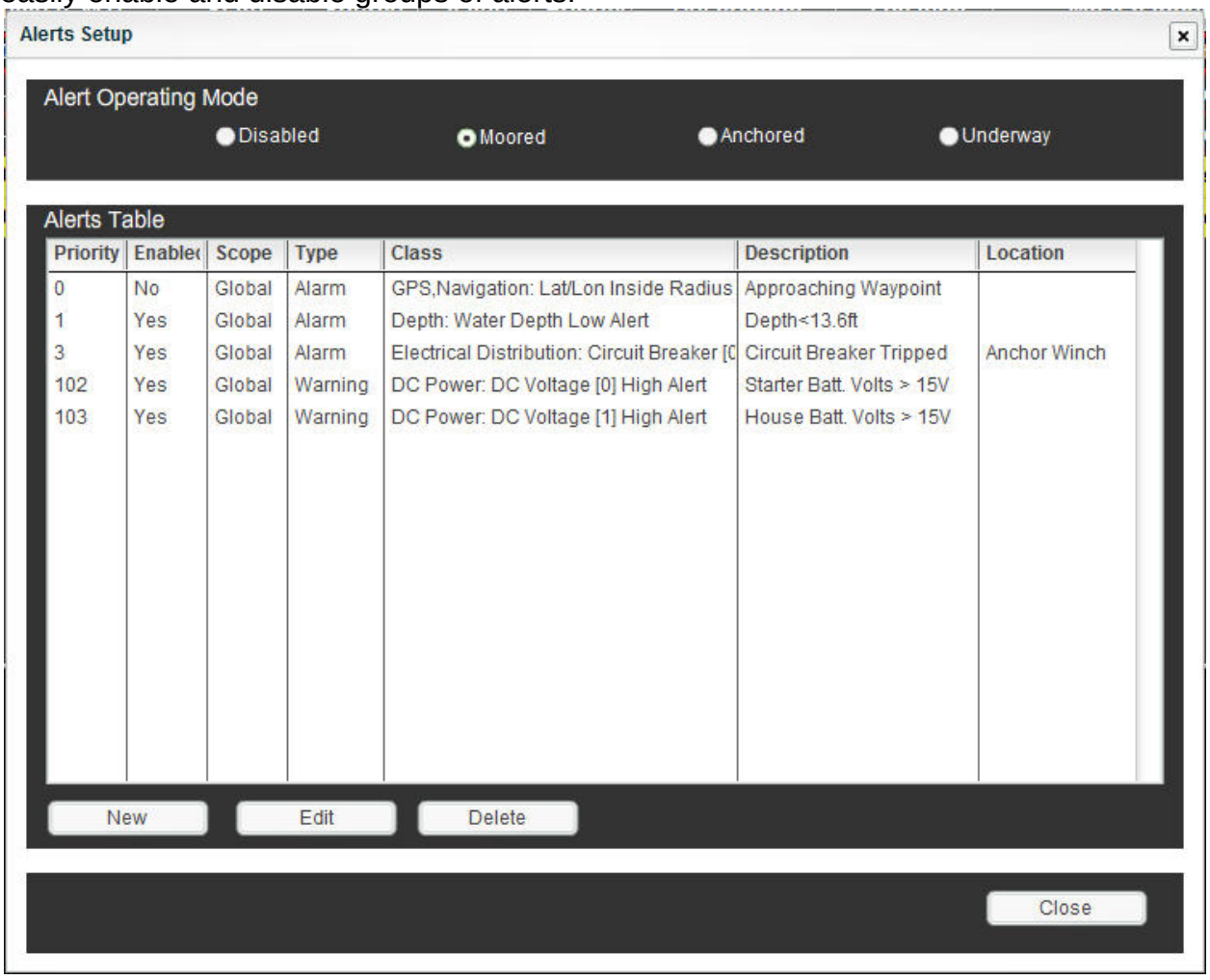


Figure 76 – Alert Setup Dialog

Alert Operating Mode – In this section, you may select the vessel's operating mode from one of the following choices:

- *Disabled* – This selection disables all alerts on the vessel. No alerts will be generated for any reason.
- *Moored* – This selection sets the vessel's operating mode to "Moored". All alerts which are enabled in "Moored" mode will be enabled. All other alerts will be disabled.
- *Anchored* – This selection sets the vessel's operating mode to "Anchored". All alerts which are enabled in "Anchored" mode will be enabled. All other alerts will be disabled.

- *Underway* – This selection sets the vessel's operating mode to "Underway". All alerts which are enabled in "Underway" mode will be enabled. All other alerts will be disabled.

Changing the operator mode may disable a number of alerts. If any alerts are Active or Accepted (i.e. the condition causing the alert is still present) then a warning is given.

Alerts Table – This table lists all the alerts defined in this instance of N2KView. Clicking on a row in the table will select an alert for editing or deletion.

New – Click this button to create a new alert. A dialog will appear allowing you to select a parameter and alert class, and the appropriate Alert Editor dialog will appear, letting you configure the new alert.

Edit – Clicking this button causes the Alert Editor dialog to appear for the selected alert.

Delete – Clicking this button causes the selected alert to be permanently deleted. A warning dialog is displayed.

Close – Clicking this button causes the Alerts Setup window to be closed.

9.3.6 Alert Editor

You initialize an alert by defining its parameters using the Alert Editor. The Alert Editor page is entered (1) through the Alerts Setup Dialog (see 9.3.5), or (2) directly from the Alert Status Screen (see 9.3.3). Different alert classes will show different Trigger Configurations, and different parameters will have different parameter sections, and an example of an Alert Editor is shown below:

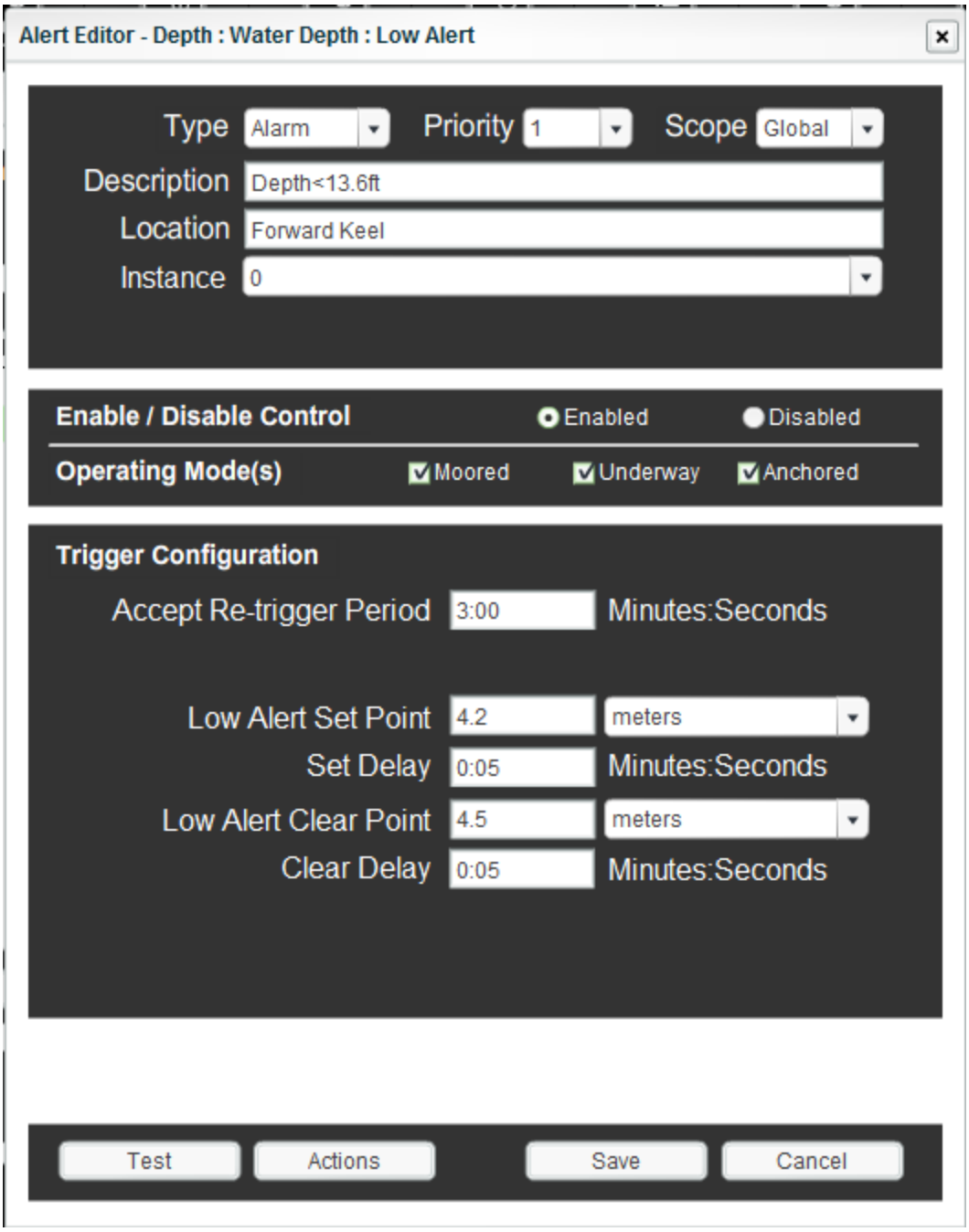


Figure 77 - Alert Editor Example

9.3.6.1 Alert Definition Section

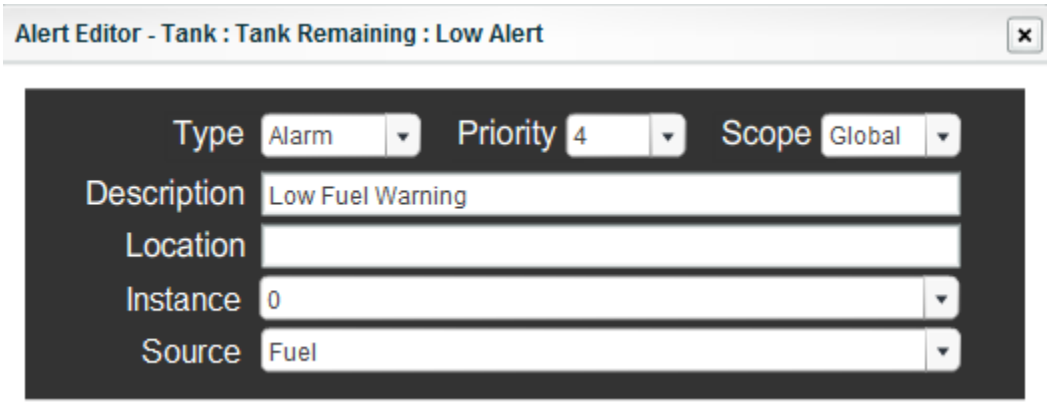


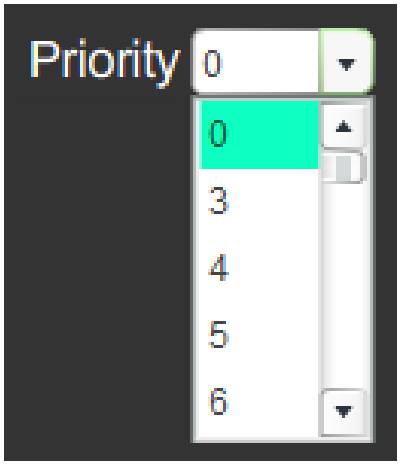
Figure 78 - Alert Editor – Alert Definition Section

The Alert Definition Section of the Alert Editor is located at the top of the Alert Editor and contains the description of the alert, and the parameter that is to be monitored.

9.3.6.1.1 Type

In this field, you may classify the alert as either an Alarm or a Warning (see Section 9.2 for details).

9.3.6.1.2 Priority



Here, you program a priority for the alert that allows you to rank it in importance compared to other alerts. The priority value can range from 0 to 9999, and N2KView will ensure that every alert has a unique priority number by omitting used priorities from the drop down list.

9.3.6.1.3 Scope

This field allows you to determine whether the alert will appear only on the instance of N2KView where it is defined (Local) or on all Platinum instances of N2KView on the network (Global).

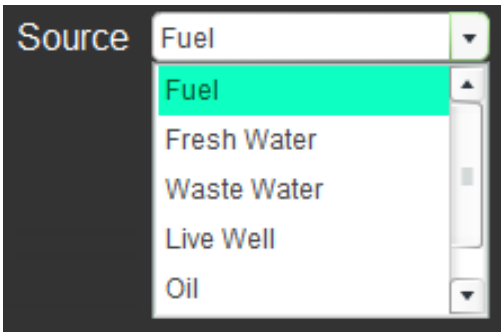
9.3.6.1.4 Description

You may type here a text description of the alert. This Description will be displayed on the Alarm Status Bar as a label for the alert, and will also appear in the description column on the Alerts Screen.

9.3.6.1.5 Location

You may type here a location of the alert. This location will be displayed on the Alarm Status Bar as part of the label for the alert, and will also appear in the “Location” column on the Alerts Screen.

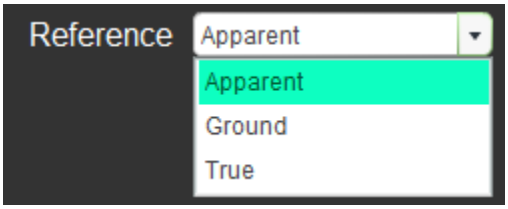
9.3.6.1.6 Source



On parameters that have multiple sources, such as tanks and temperature, this field allows to select the source of the data.

This field may not always be present.

9.3.6.1.7 Reference



On parameters that have multiple references, such as wind, this field allows to select the reference of the data.

This field may not always be present.

9.3.6.1.8 Indicators / Circuit Breakers

Channel
Channel 1 (Fire Fly Bridge)
Channel 1 (Fire Fly Bridge)
Channel 2 (CO Fly Bridge)
Channel 3 (Fire Dining)
Channel 4 (CO Dining)
Channel 5 (Fire Saloon)

Figure 79 – Channel Drop Down List

For indicator channels and Circuit Breakers, this field allows you to select the channel field in the message that relates to the channel or breakers you want to monitor. If a

label has been stored in the transmitting module, this will be displayed in parenthesis after the channel number.

This field may not always be present.

9.3.6.1.9 Instance

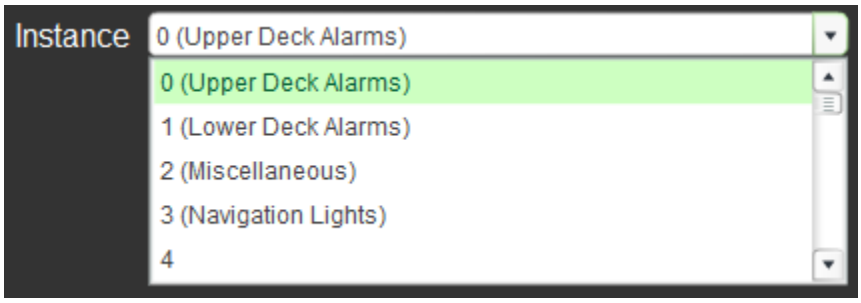
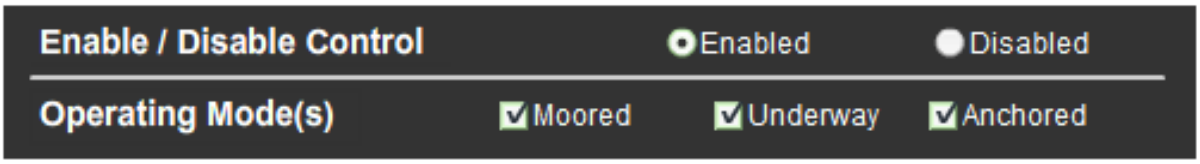


Figure 80 – Instance Drop Down List

This combo box identifies the instance number of the device to which the alert applies. The instance number may be chosen by pressing the small arrow to the right of the number, and selecting from the list of options that drops down. If a label has been stored in the transmitting module, this will be displayed in parenthesis after the channel number.

This field may not always be present.

9.3.6.2 Alert Enablement



The Alert Enablement Section of the Alert Editor is located in the middle of the Alert Editor and contains the controls to enable and disable the alert.

9.3.6.2.1 Enable/Disable Control

In this field, you may globally enable or disable this alert from functioning. Selecting Enabled will automatically deselect Disabled and vice versa. Changing an Active or Accepted alert from Enabled to Disabled will show a warning. Disabling an alert here will take precedence over all other enabling / disabling actions.

9.3.6.2.2 Operating Mode(s)

In this field, you may choose in which vessel operating modes, Moored, Underway, or Anchored, this alert is enabled. You may choose any or all of these modes. The default is to have all three modes enabled. If the alert is Active or Accepted (i.e. the condition causing the alert is still present) and the check box for the current operating mode is disabled, a warning will be shown.

9.3.6.3 Alert Editor Buttons

Figure 81 - Alert Editor Buttons

The Alert Editor Buttons are located at the bottom of the Alert Editor. The area above the buttons is used to communicate messages to the user regarding incomplete fields in the editor.

9.3.6.3.1 Test

The Test button is only active after the Alert has been created, and is grayed out on initial creation. Pressing the Test Button will transition the alert into the Active state, giving a full test of all the actions associated with the Alert. The word “Test” will be pre-pended to all descriptions of the alert, including email titles. Note that pressing the Test button will simulate the transition of the test value to a value that would activate the alert. The alert will only become active after the Set Delay has expired.

While the Test is in progress, the Test button changes to a **Stop Test** button, which can be used to stop the test. The alert will transition to the Inactive state after the Clear Delay has expired.

9.3.6.3.2 Actions

This button opens the Alert Action Editor for the chosen alert (see section 9.3.7).

9.3.6.3.3 Save

Pressing the Save button will save the alert Information in the database and exit the editor. The Save button will be grayed out if the editor contains inconsistent or missing information.

9.3.6.3.4 Cancel

Pressing the Cancel button will exit editor without saving the alert information.

9.3.6.4 Trigger Configurations

Because each alert type has a different trigger configurations layout, each alert type is presented in a different section.

9.3.6.4.1 High Alert

A high alert is used to signal you when a parameter value rises above a threshold you determine. For example, you can set an alert to occur whenever the freezer temperature rises above 0°C.

9.3.6.4.1.1 Description

A high alert and associated diagram are shown in the figure below.

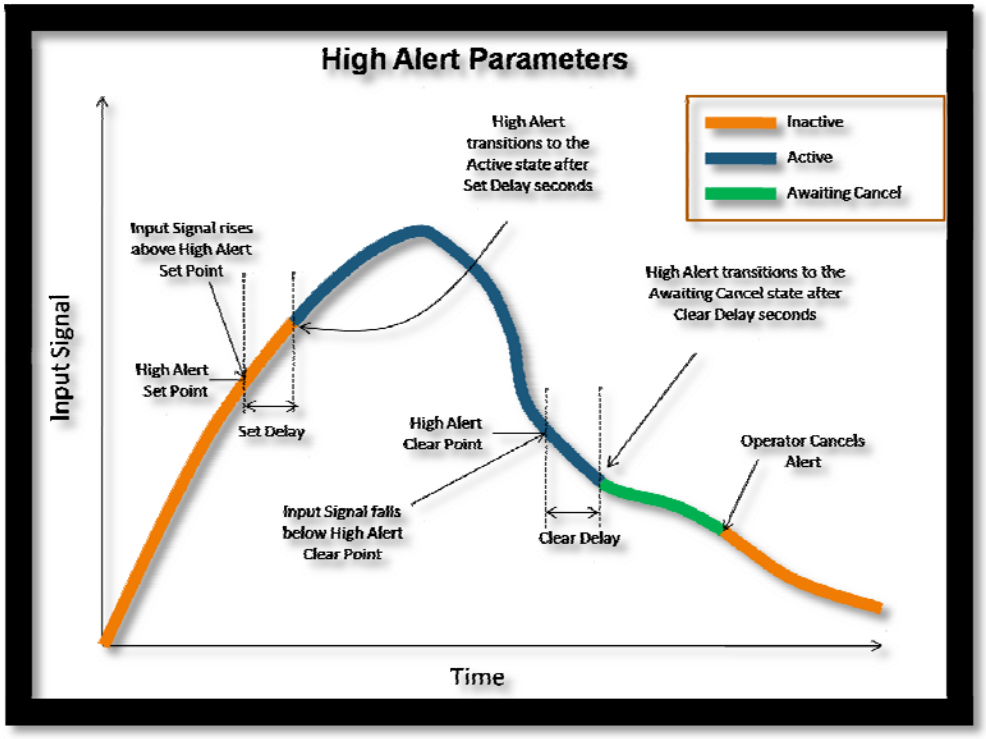

High Alert Parameters
Inactive
Active
Awaiting Cancel
High Alert transitions to the Active state after Set Delay seconds
Input Signal rises above High Alert Set Point
High Alert transitions to the Awaiting Cancel state after Clear Delay seconds
High Alert Set Point
Set Delay
High Alert Clear Point
Operator Cancels Alert
Input Signal falls below High Alert Clear Point
Clear Delay
Input Signal
Time

Figure 82 – High Alert Parameters

A high alert is triggered (i.e. becomes an active alert) once an input signal has risen above the *High Alert Set Point* and the *Set Delay* time has elapsed. If the *Set Delay* is set to zero, then the alert is immediately triggered once the input signal rises above the *High Alert Set Point*. The *Set Delay* is used to reduce false or spurious alerts. As an example, setting the *Set Delay* to 5 seconds will eliminate any temporary transitions of the input signal above the *High Alert Set Point* lasting less than 5 seconds from triggering an alert.

Once the alert is triggered, it becomes an active alert. An alert remains active until

- The input signals falls below the *High Alert Clear Point* and the *Clear Delay* time has elapsed. If the *Clear Delay* is set to zero, then the alert immediately transitions to the Awaiting Cancel once the input signal falls below the *High Alert Clear Point* (as shown in the example above).

- The user accepts the alert in which case it transitions into the Accepted state.

The *Clear Delay* is used to reduce false or spurious alerts.

9.3.6.4.1.2 Trigger Configuration

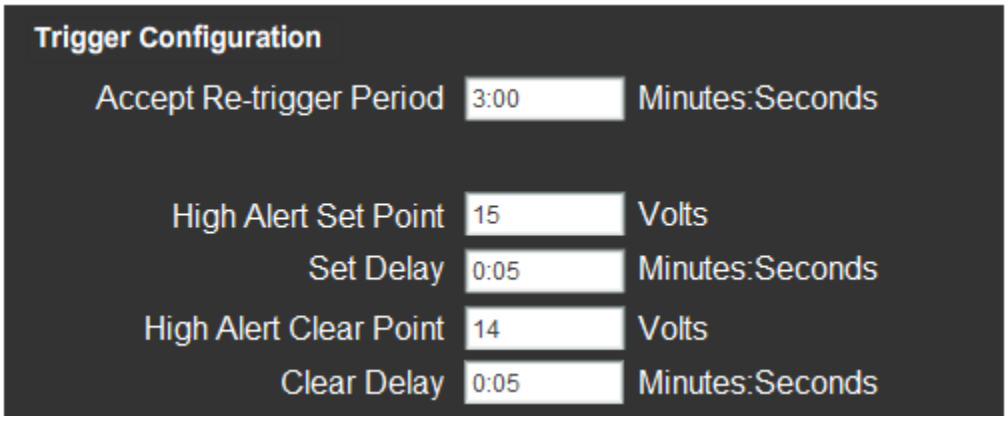


Figure 83 – Trigger Configuration – High Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert. The value is entered as minutes:seconds. If only one number is entered, it will be interpreted as seconds.

High Alert Set Point – If the value of the parameter being monitored rises above the value in this field, the alert will become active.

Set Delay – The parameter being monitored must rise above the High Alert Set Point value for longer than the time in this field in order for an alert to become active. This

can be used to prevent false alerts caused by parameter values that briefly have a value that would cause an alert but quickly return to the normal value range. The value is entered as minutes:seconds. If only one number is entered, it will be interpreted as seconds.

High Alert Clear Point – If the alert is active and the parameter value falls below the value in this field, the alert will become inactive.

Clear Delay – The parameter being monitored must fall below the High Alert Clear Point value for longer than the time in this field in order for the alert to become inactive. The value is entered as minutes:seconds. If only one number is entered, it will be interpreted as seconds.

9.3.6.4.2 Low Alert

A low alert is used to signal you when a parameter value falls below a threshold you determine. For example, you can set an alert to occur whenever the port engine oil pressure rises falls below 40 PSI.

9.3.6.4.2.1 Parameters

A low alert and associated diagram are shown in the figure below.

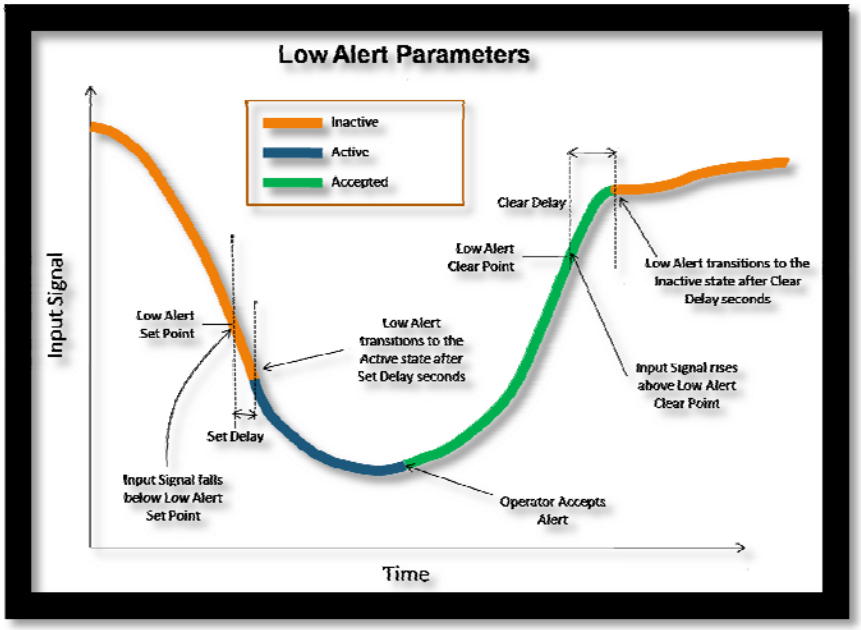

Low Alert Parameters
Inactive
Active
Accepted
Input Signal
Time
Clear Delay
Low Alert Clear Point
Low Alert transitions to the Inactive state after Clear Delay seconds
Low Alert Set Point
Low Alert transitions to the Active state after Set Delay seconds
Input Signal rises above Low Alert Clear Point
Set Delay
Input Signal falls below Low Alert Set Point
Operator Accepts Alert

Figure 84 – Low Alert Parameters

A low alert is triggered (i.e. becomes an active alert) once an input signal has dropped below the *Low Alert Set Point* and the *Set Delay* time has elapsed. If the *Set Delay* is set to zero, then the alert is immediately triggered once the input signal drops below the

Low Alert Set Point. The *Set Delay* is used to reduce false or spurious alerts. As an example, setting the *Set Delay* to 5 seconds will eliminate any temporary transitions of the input signal above the *Low Alert Set Point* lasting less than 5 seconds from triggering an alert.

Once the alert is triggered, it becomes an active alert. An alert remains active until:

- The input signals rises above the *Low Alert Clear Point* and the *Clear Delay* time has elapsed. If the *Clear Delay* is set to zero, then the alert immediately becomes inactive once the input signal falls below the *Low Alert Clear Point*. The *Clear Delay* is used to reduce false or spurious alerts.

- The user accepts the alert (as shown in the example above).

9.3.6.4.2.2 Trigger Configuration

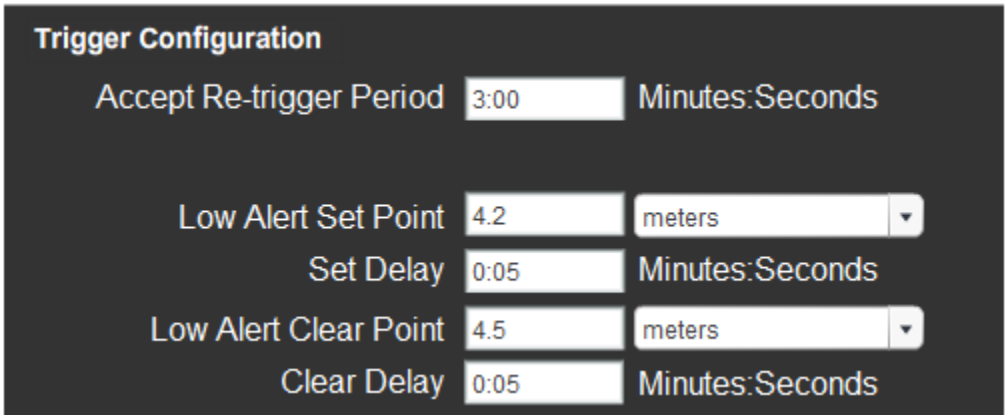


Figure 85 - Trigger Configuration – Low Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert.

Low Alert Set Point – If the value of the parameter being monitored falls below the value in this field, the alert will become active.

Set Delay – The parameter being monitored must fall below the Low Alert Set Point value for longer than the time in this field in order for an alert to become active. This can be used to prevent false alerts caused by parameter values that briefly have a value that would cause an alert but quickly return to the normal value range. The value is entered as minutes:seconds. If only one number is entered, it will be interpreted as seconds.

Low Alert Clear Point – If the alert is active and the parameter value rises above the value in this field, the alert will become inactive.

Clear Delay – The parameter being monitored must rise above the Low Alert Clear Point value for longer than the time in this field in order for the alert to become inactive. The value is entered as minutes:seconds. If only one number is entered, it will be interpreted as seconds.

In this example, the set point may be described in more than one unit, so additional fields have been supplied so that the user can select the units of depth. Changing the units of the set point will also change the units of the clear point. The initial units displayed in these fields will correspond to those set in the Units Dialog (see section 8.4.5.1).

9.3.6.4.3 Data Unavailable Alert

The Data Unavailable Alert can be used in conjunction with other alert types when you need to know if a particular parameter is no longer being sent on the network or is flagged as “not available” by the transmitting device. For instance, you probably would want to use a Data Unavailable Alert for the Depth->Current Depth parameter, since it would be advisable to know if the depth sounder were to stop transmitting a depth reading or became unable to determine the depth due to fouling or some other reason. On the other hand, if you were to set a Data Unavailable Alert on Engine->Engine Water Temperature parameter, you would then get an alert every time the ignition was switched off and the engine’s ECU stopped transmitting data.

9.3.6.4.3.1 Trigger Configuration

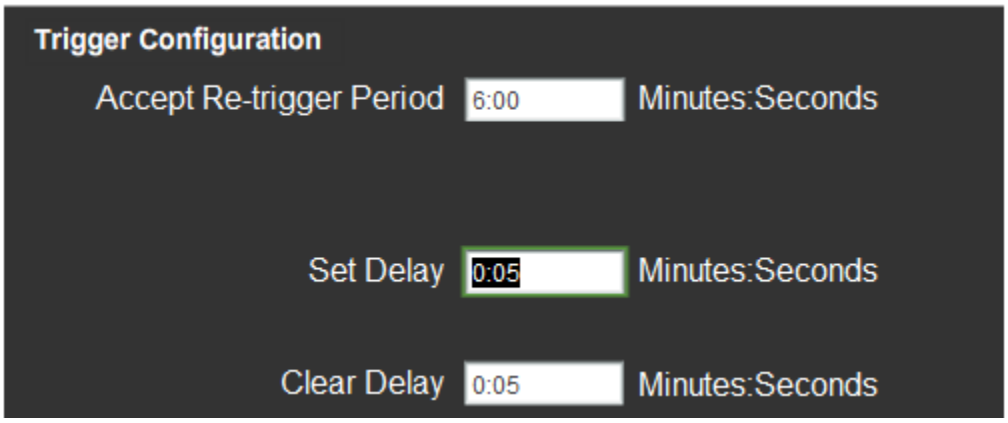


Figure 86 – Trigger Configuration – Data Unavailable Alert

Accept Re-trigger Period – When you accept an alert, it will change to the “Accepted” state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the

alert will return to the “Active” state, and annunciators will begin sounding again for that alert.

Set Delay – If a valid value for the parameter being monitored is continually not received or has an invalid value for the amount of time specified in this field, the alert will become active.

Clear Delay – The parameter being monitored must continually be received with a valid value for longer than the time in this field in order for the alert to become inactive.

9.3.6.4.4 On Alert

As opposed to high and low alerts that are associated with analog input signals (i.e., many different possible input values), there are also switch alerts that are associated with a binary input value (sometimes called on or off, yes or no, enabled or disabled, set or reset, active or inactive). The switch alert is similar to the high and low alert except that there are no set or reset points. The mere fact that the switch is seen as On causes the alert to become an active alert (assuming the Set Delay is set to zero). Likewise, if the switch being monitored is seen as false (i.e., binary 0), then the alert becomes inactive (assuming the Clear Delay is set to zero). If the delays are not programmed to zero, then the switch must remain On for the Set Delay before the alert becomes active, and must remain Off for the Clear Delay before the alert becomes inactive.

9.3.6.4.4.1 Trigger Configuration

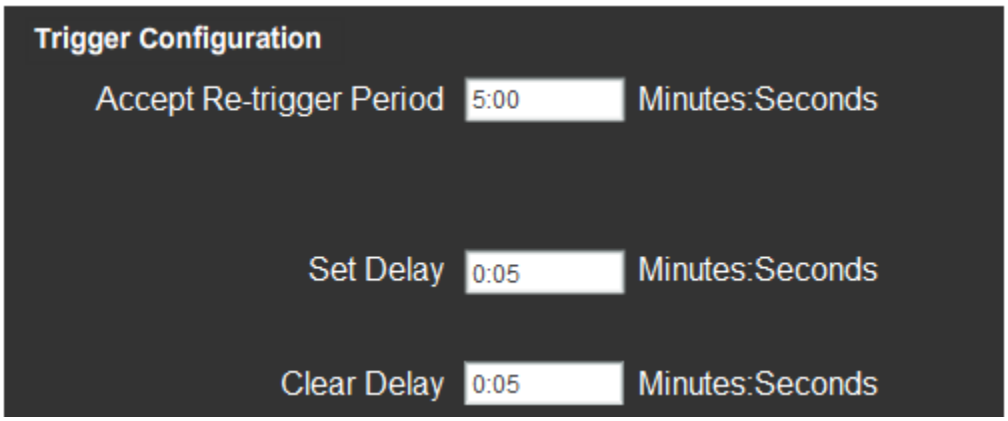


Figure 87 – Trigger Configuration – On Alert

Accept Re-trigger Period – When you accept an alert, it will change to the “Accepted” state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the “Active” state, and annunciators will begin sounding again for that alert.

Set Delay – The condition for the parameter being monitored must be in its error condition for at least the set delay time before the alert will become active. An interesting use of the set delay when monitoring a bilge pump (for example) is to set the Set Delay to a large value (say 20 minutes). Now, if the bilge pump runs for more than 20 minutes at a time the alert will be triggered.

Clear Delay – The condition for the parameter being monitored must be not in its error condition for at least the clear delay time before the alert will become cleared.

9.3.6.4.5 Off Alert

As opposed to high and low alerts that are associated with analog input signals (i.e., many different possible input values), there are also switch alerts that are associated with a binary input value (sometimes called on or off, yes or no, enabled or disabled, set or reset, active or inactive). The switch alert is similar to the high and low alert except that there are no set or reset points. The mere fact that the switch is seen as Off causes the alert to become an active alert (assuming the Set Delay is set to zero). Likewise, if the switch being monitored is seen as On, then the alert becomes inactive (assuming the Clear Delay is set to zero). If the delays are not programmed to zero, then the switch must remain Off for the Set Delay before the alert becomes active, and must remain On for the Clear Delay before the alert becomes inactive.

9.3.6.4.5.1 Trigger Configuration

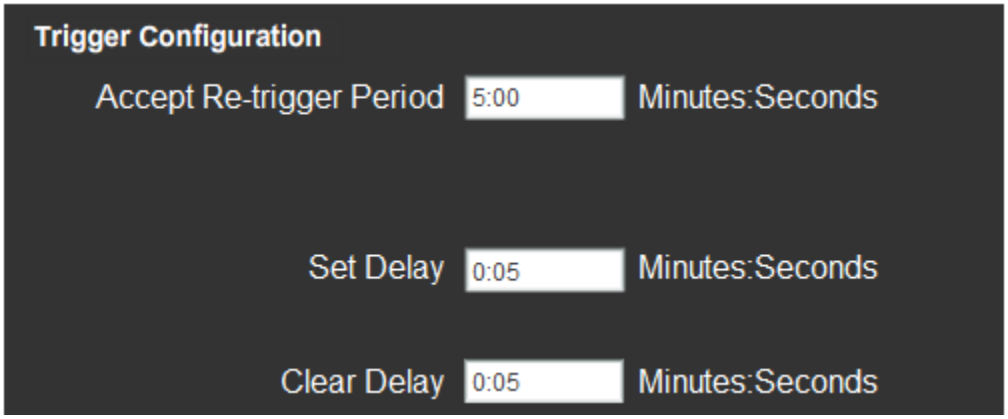


Figure 88 – Trigger Configuration – Data Unavailable Alert

Accept Re-trigger Period – When you accept an alert, it will change to the “Accepted” state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the “Active” state, and annunciators will begin sounding again for that alert.

Set Delay – If the switch being monitored is in the Off state for the amount of time specified in this field, the alert will become active.

Clear Delay – If the switch being monitored is in a state other than “Off” for the amount of time specified in this field, the alert will become inactive.

9.3.6.4.6 Tripped Alert

When monitoring circuit breakers, the tripped alert can be used to raise an alert when the circuit breaker trips due to over current. As with the On and Off alerts, the Set Delay and Clear Delay values are used to prevent spurious triggering.

9.3.6.4.6.1 Trigger Configuration

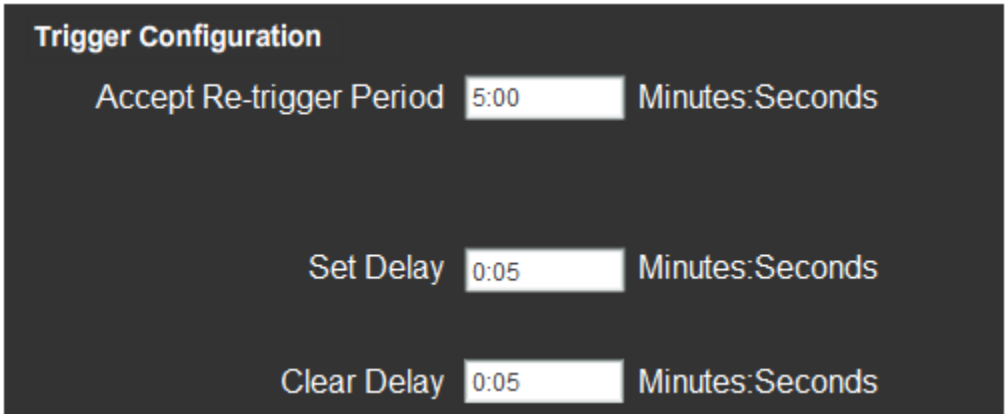


Figure 89 – Trigger Configuration Editor - Tripped Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert.

Set Delay – If the switch being monitored is in the Tripped state for the amount of time specified in this field, the alert will become active.

Clear Delay – If the switch being monitored is in a state other than "Tripped" for the amount of time specified in this field, the alert will become inactive.

9.3.6.4.7 Outside Radius Alert

The Outside Radius Alert is used to signal an alert whenever the vessel moves outside a programmable distance in any direction away from a reference point (expressed as a longitude and latitude). This alert is useful when the vessel is anchored or moored and the vessel should not drift outside a perimeter and if it does, an alert is activated. The point of reference can be selected from the current position or it can be manually entered. **Error! Reference source not found.** shows an Outside Radius Alert and associated parameters.

9.3.6.4.7.1 Parameters

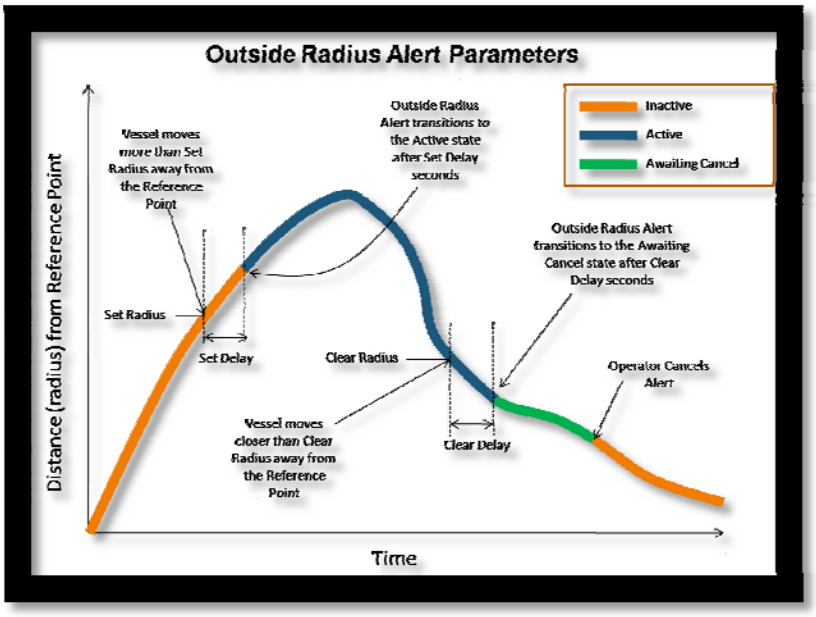

Outside Radius Alert Parameters
Distance (radius) from Reference Point
Time
Inactive
Active
Awaiting Cancel
Vessel moves more than Set Radius away from the Reference Point
Outside Radius Alert transitions to the Active state after Set Delay seconds
Outside Radius Alert transitions to the Awaiting Cancel state after Clear Delay seconds
Set Radius
Set Delay
Clear Radius
Clear Delay
Operator Cancels Alert
Vessel moves closer than Clear Radius away from the Reference Point

Figure 90 – Outside Alert Parameters

9.3.6.4.7.2 Trigger Configuration – Outside Radius Alert

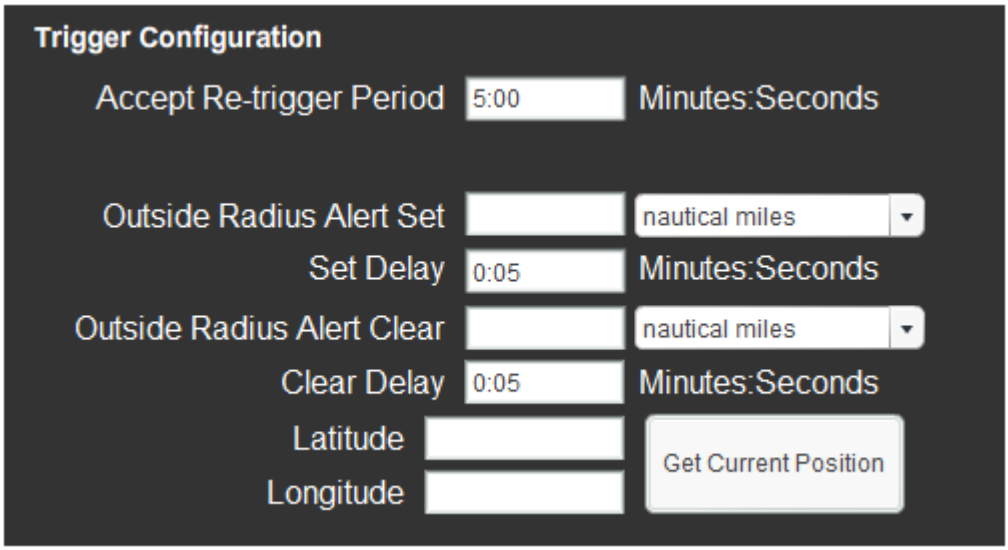


Figure 91 - Trigger Configuration – Outside Radius Alert

Accept Re-trigger Period – When you accept an alert, it will change to the “Accepted” state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the “Active” state, and annunciators will begin sounding again for that alert.

Outside Radius Alert Set – If the distance between the current GPS position and the reference position rises above the value in this field, the alert will become active.

Set Delay – The distance between the current GPS position and the reference position must rise above the Outside Radius Alert Set value for longer than the time in this field in order for an alert to become active.

Outside Radius Alert Clear – If the alert is active and the distance between the current GPS position and the reference position falls below the value in this field, the alert will become inactive.

Clear Delay – The distance between the current GPS position and the reference position must fall below the Outside Radius Alert Clear value for longer than the time in this field in order for an alert to become inactive.

Latitude – The latitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an N or S. If the N or S is missing, North is assumed. Moving the cursor to another field will reformat the contents of this field.

Longitude – The longitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an E or W. If the E or W is missing, East is assumed. Moving the cursor to another field will reformat the contents of this field.

Get Current Position – Pressing or clicking on this button will transfer the current GPS position into the Latitude and Longitude fields.

9.3.6.4.8 Anchor Watch Alert

The Anchor Watch Alert is very similar to the Outside Radius Alert, being tailored to anchoring. It is used to signal an alert whenever the vessel moves a programmable distance in any direction away from an anchor point (expressed as a longitude and latitude). This alert is useful when the vessel is anchored or moored and the vessel should not drift outside a perimeter and if it does, an alert is activated. The point of reference can be selected from the current position or it can be manually entered, or it may be entered by pressing a button on the Anchor Watch Component (see section 8.5.18).

9.3.6.4.8.1 Instancing – Anchor Watch Alert

When editing an Anchor Watch Alert, the instance number of the GPS supplying the vessel's position must be specified.

9.3.6.4.8.2 Trigger Configuration – Anchor Watch Alert

While the units of the radius for the Outside Radius Alert are expressed in the same units as distance (e.g. Nautical Miles), the units of the Anchor Watch Alert are expressed in the same units as the depth (e.g. feet). This is more convenient because the distance from the anchor will be related to amount of anchor chain released, which in turn is related to the depth at the point of anchor.

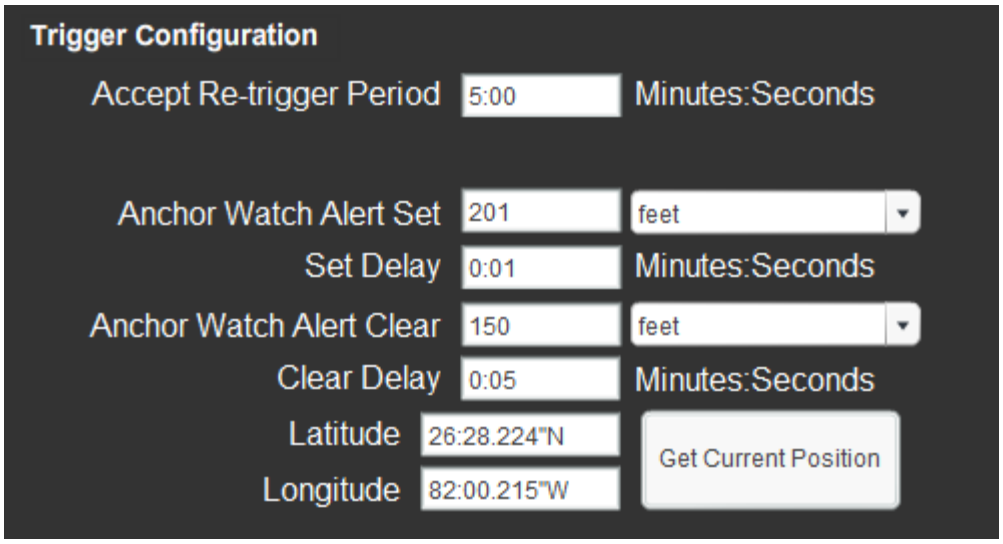


Figure 92 - Trigger Configuration – Anchor Watch Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert.

Anchor Watch Alert Set – If the distance between the current GPS position and the reference position rises above the value in this field, the alert will become active.

Set Delay – The distance between the current GPS position and the reference position must rise above the Outside Radius Alert Set value for longer than the time in this field in order for an alert to become active.

Anchor Watch Alert Clear – If the alert is active and the distance between the current GPS position and the reference position falls below the value in this field, the alert will become inactive.

Clear Delay – The distance between the current GPS position and the reference position must fall below the Anchor Watch Alert Clear value for longer than the time in this field in order for an alert to become inactive.

Latitude – The latitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an N or S. If the N or S is missing, North is assumed. Moving the cursor to another field will reformat the contents of this field. For the Anchor Watch Alert, this field may be left blank if the alert is disabled, enabling the Alert to be created in advance of anchoring.

Longitude – The longitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an E or W. If the E or W is missing, East is assumed. Moving the cursor to another field will reformat the contents of this field. For the Anchor Watch Alert, this field may be left blank if the alert is disabled, enabling the Alert to be created in advance of anchoring.

Get Current Position – Pressing or clicking on this button will transfer the current GPS position into the Latitude and Longitude fields.

9.3.6.4.9 Inside Radius Alert

The Inside Radius Alert is similar to the Outside Radius Alert except that an alert is activated if the vessel comes within a certain distance or radius of a reference point (expressed as a longitude and latitude). **Error! Reference source not found.**shows an Inside Radius Alert and associated parameters.

9.3.6.4.9.1 Trigger Configuration

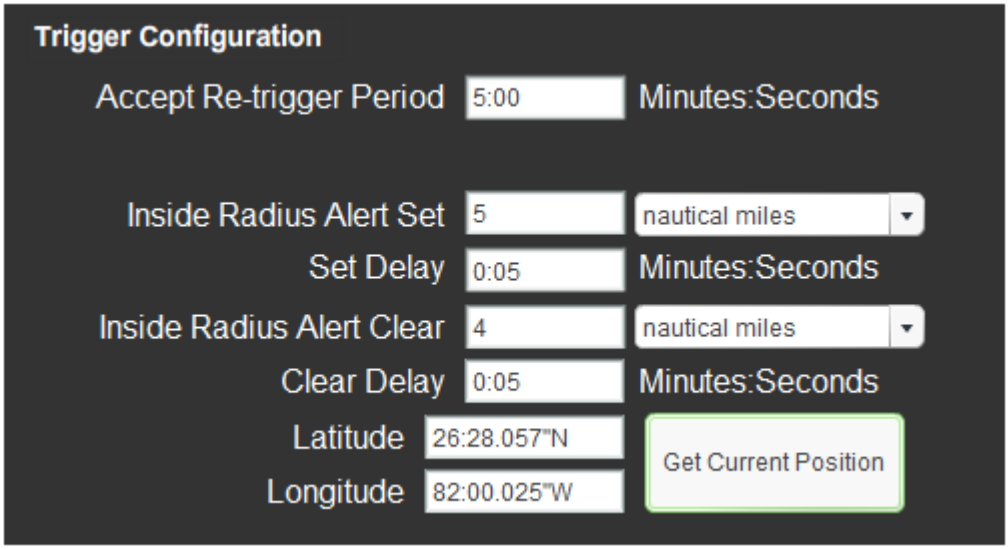


Figure 93 – Trigger Configuration - Inside Radius Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert.

Inside Radius Alert Set – If the distance between the current GPS position and the reference position falls below above the value in this field, the alert will become active.

Set Delay – The distance between the current GPS position and the reference position must fall below the Inside Radius Alert Set value for longer than the time in this field in order for an alert to become active.

Inside Radius Alert Clear – If the alert is active and the distance between the current GPS position and the reference position rises above the value in this field, the alert will become inactive.

Clear Delay – The distance between the current GPS position and the reference position must rise above the Inside Radius Alert Clear value for longer than the time in this field in order for an alert to become inactive.

Latitude – The latitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an N or S. If the N or S is missing, North is assumed. Moving the cursor to another field will reformat the contents of this field.

Longitude – The longitude of the reference position. This may be typed in as <degrees>:<minutes> followed by an E or W. If the E or W is missing, East is assumed. Moving the cursor to another field will reformat the contents of this field.

Get Current Position – Pressing or clicking on this button will transfer the current GPS position into the Latitude and Longitude fields.

9.3.6.4.10 GPS Quality Alert

The accuracy, or quality, of a position fix provided by a GPS is dependent on the number of satellites used to compute the position. A position based on less than three satellites is considered a “1D” lock, three satellites is a “2D” lock, more than three satellites is a “3D” lock, and more than three satellites with SBAS is a “3D-DGPS” lock. These different locks are indicative of the quality or accuracy of the given position with 1D having the lowest quality and 3D-DGPS providing the highest quality. The GPS Quality Alert is used to alert you if the quality of the position falls below a specified quality level.

9.3.6.4.10.1 Trigger Configuration – GPS Quality Alert

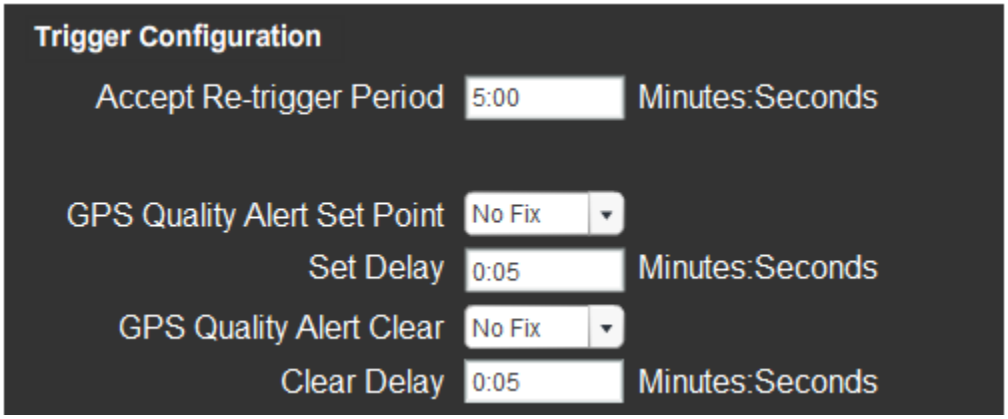
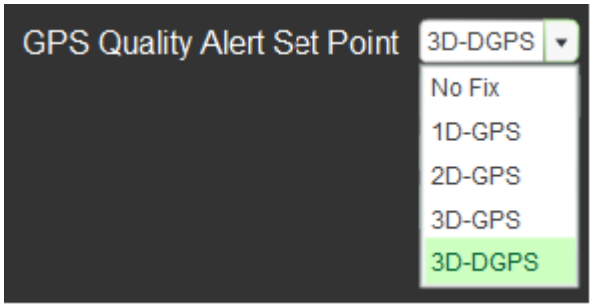


Figure 94 – Trigger Configuration - GPS Quality Alert

Accept Re-trigger Period – When you accept an alert, it will change to the “Accepted” state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the “Active” state, and annunciators will begin sounding again for that alert.



GPS Quality Alert Set Point, Set Delay – When the quality of the GPS fix becomes lower than the quality specified in this field for longer than the time specified in the Set Delay field, the alert will become active.

GPS Quality Alert Set Point, Clear Delay – If the alert is active and the quality of the GPS fix becomes higher than the quality specified in the GPS Quality Alert Set Point field for longer than the time specified in the Clear Delay field, the alert will become inactive.

9.3.6.4.11 Direction Alert

A Direction Alert is used to indicate that a heading or wind direction has changed from the reference direction more than a programmable amount. For example, once a heading has been established, an alert can be generated if the heading changes more than a specified amount. Direction Alerts may also be set for wind direction. The reference direction can be selected from the current direction (heading or wind direction) or it can be manually entered. **Error! Reference source not found.** shows a Direction Alert and associated parameters.

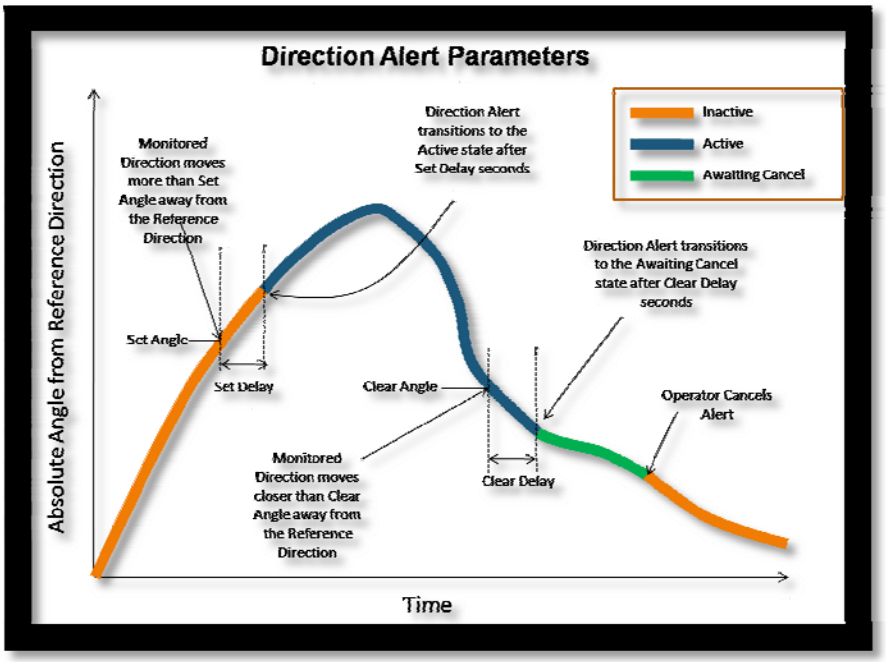

Direction Alert Parameters
Inactive
Active
Awaiting Cancel
Monitored Direction moves more than Set Angle away from the Reference Direction
Direction Alert transitions to the Active state after Set Delay seconds
Direction Alert transitions to the Awaiting Cancel state after Clear Delay seconds
Set Angle
Set Delay
Clear Angle
Operator Cancels Alert
Monitored Direction moves closer than Clear Angle away from the Reference Direction
Clear Delay
Absolute Angle from Reference Direction
Time

Figure 95 – Direction Alert Parameters

9.3.6.4.11.1 Trigger Configuration – Direction Alert

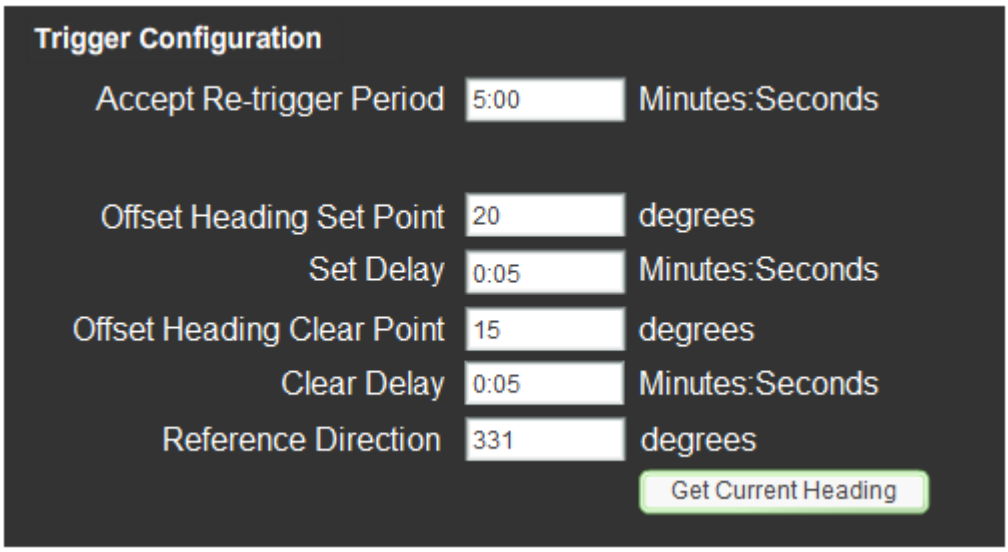


Figure 96 – Trigger Configuration - Direction Alert

Accept Re-trigger Period – When you accept an alert, it will change to the "Accepted" state, and annunciators that are sounding for that alert will stop sounding. If the condition which caused the alert remains true after the amount of time in this field, the alert will return to the "Active" state, and annunciators will begin sounding again for that alert.

Offset Heading Set Point, Set Delay – If the direction being monitored differs from the reference direction by more than the Offset Heading Set Point for longer than the time specified in the Set Delay field, the alert will become active.

Offset Heading Clear Point, Clear Delay – If the alert is active and the direction being monitored differs from the reference direction by less than the Offset Heading Clear Point for longer than the time specified in the Clear Delay field, the alert will become inactive.

Reference Direction – Enter the desired reference direction into this field. If the monitored value differs from this value by more than the Offset Heading Set Point, the alert will be triggered.

Get Current Heading – Pressing or clicking on this button will transfer the current value of the direction being monitored into the Reference Direction Field.

9.3.6.4.12 Course Alert

A Course Alert is used to indicate that the course over ground (COG) has changed from the reference direction more than a programmable amount. For example, once a course has been established, an alert can be generated if the course changes more than a specified amount. The reference direction can be selected from the current direction (COG) or it can be manually entered.

The Course Alert is identical to the Direction Alert. In the editor, the word Direction is replaced by Course.

9.3.6.5 Time Alert

N2KView can be configured with alerts that go active at a predetermined time, such as an alarm clock. These alerts can also be configured to become active periodically, making them useful for signaling watch changes (for example, every four hours) or as a personnel alarm (making sure a crew member is at the helm every 15 minutes).

When a Time Alert with a Repeat Interval of zero is accepted, it will be Disabled to prevent further triggering.

When a Time Alert with a Repeat Interval greater than zero is accepted, it will transition to the Inactive state, waiting for the next time it should trigger.

9.3.6.5.1 Trigger Configuration – Time Alert

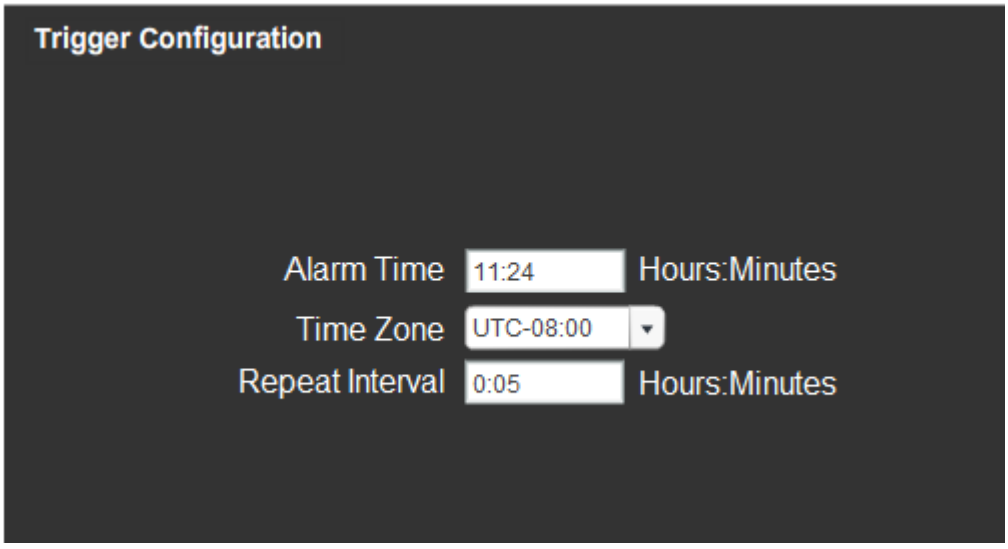


Figure 97 - Alert Editor - Time Alert

Alarm Time – The alert will become active at the time specified in this field. If the time specified has already passed, then the alarm will be set for the next day. Entering a number without the colon will assume that the hours are zero. The field will reformat when the cursor is moved to a different field.

Time Zone – The Time Zone in which the alert time is compared to the current time. The time zone is chosen from a drop down list. The list includes a value of “Local” which means that an alarm set for 7:00 will be triggered at 7:00 am local time even when the time zones change.

Repeat Interval – The alert will become active again after the period specified in this field. For example, if the Alarm Time were set to 8:00 and the Repeat Interval were set to 1:00 (1 hour, zero minutes), the Alarm would become active again at 9:00, 10:00, and so on. The field will reformat when the cursor is moved to a different field.

9.3.7 Alert Actions Dialog

The Alert Actions Dialog is entered from the Alert Edit Dialog by pressing or clicking on the Actions button.

N2KView allows you to program different actions when an alert becomes active, such as sounding annunciators with selected tone patterns, and sending e-mails with selected text. This is done through the Alert Action Editor dialog, which is shown below.

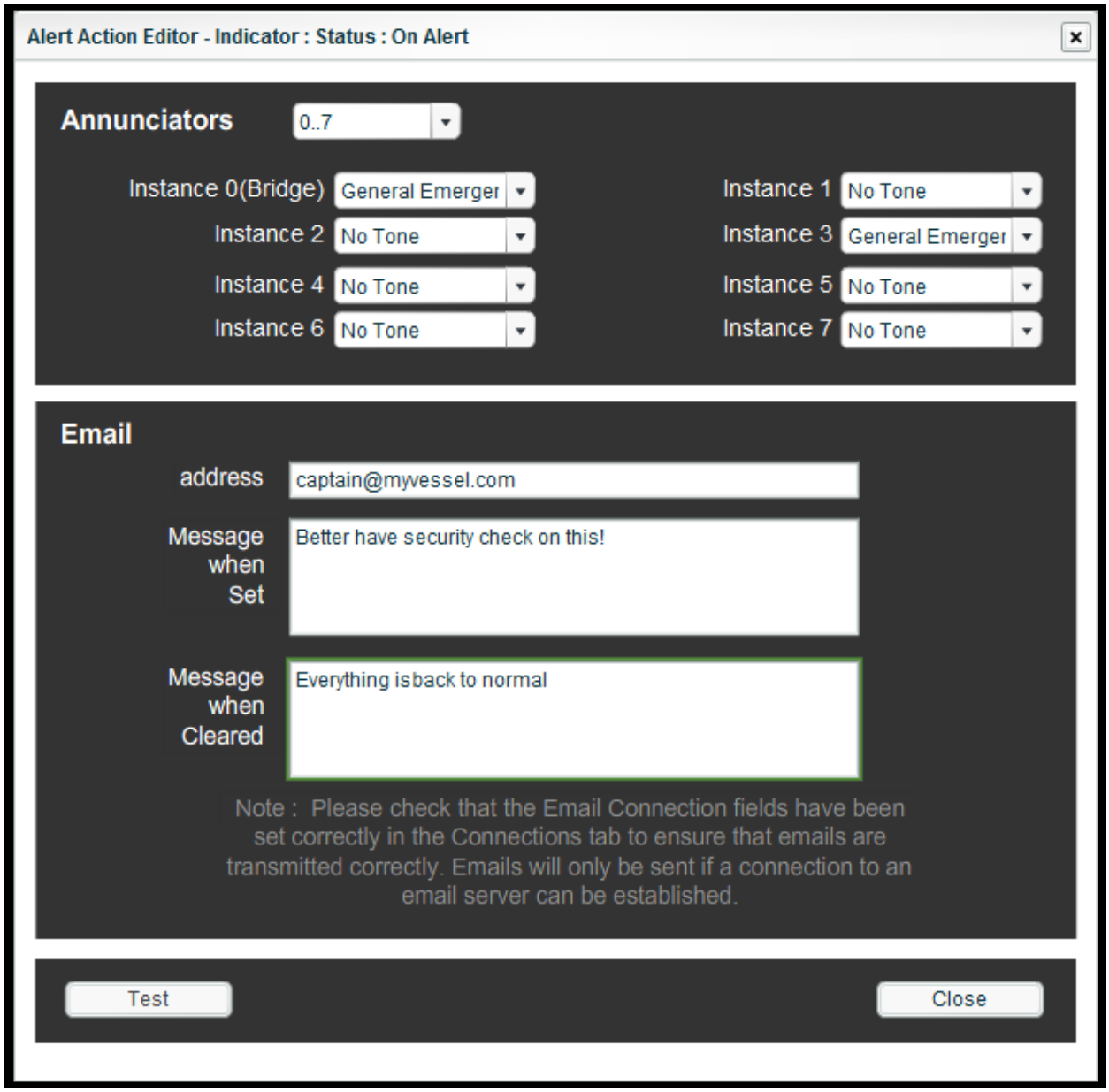


Figure 98 - Alert Action Editor Dialog

Please note that the e-mail server must be properly configured (please refer to Section 8.4.4.10 for details on how to do this). The title of the message is pre-defined and will contain the description and location of the alarm as well as a description of the type of event.

Annunciators: Instance 0 through Instance 15 – N2KView supports the presence of up to sixteen different annunciators on the vessel, presented in two groups of eight. The group is selected through a drop down list at the top of the page.

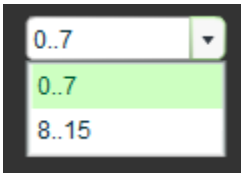


Figure 99 – Annunciator Group Selection

For each alert, you may choose which of these annunciators sound and the type of tone sequence that the annunciator sounds. For example, you may wish the annunciator in the owner's stateroom to sound in the event of a general emergency or if a smoke is detected, but not if the engine coolant temperature is too high. If the annunciator has been programmed with a label, N2KView will get the label from the annunciator and append the label to the instance number. This makes it easier to know which annunciator is being referenced.

Email: address – N2KView can send an e-mail notice to anyone you desire when an alert becomes active. Enter an e-mail address to which to send the e-mail notices into this field. More than one email address can be entered by separating the addresses with semi-colons ";". Most cell phone service providers allow short emails to be sent to cell phones as Text Messages. Contact your cell phone provider to obtain the email address of your cell phone or visit http://www.ehow.com/how_4448927_send-email-cell-phone.html.

Message when set – this text is transmitted when the condition causing the alert becomes true. As the title of the message already contains information to identify the alert, this field can be left blank if desired.

Message when cleared – this text is transmitted when the condition causing the alert becomes false (when the alert transitions from Active to Awaiting Cancel or is disabled). As the title of the message already contains information to identify the alert, this field can be left blank if desired.

Test Button - The Test button is only active after the Alert has been created, and is grayed out on initial creation. Pressing the Test Button will transition the alert into the Active state, giving a full test of all the actions associated with the Alert. The word "Test" will be pre-pended to all descriptions of the alert, including email titles. Note that pressing the Test button will simulate the transition of the test value to a value that

would activate the alert. The alert will only become active after the Set Delay has expired.

While the Test is in progress, the Test button changes to a **Stop Test** button, which can be used to stop the test. The alert will transition to the Inactive state after the Clear Delay has expired.

9.4 Available Alerts

The N2KView system organizes the various available data types into a two-level system of data Categories and data Types. Each data category consists of a number of closely-related data types. This section enumerates all of the data types for which alerts are available and lists the available alerts for each.

9.4.1 AC Bus

9.4.1.1 AC Bus Average Frequency

Monitors the average frequency of an AC bus across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.2 AC Bus Average Line-Line Voltage

Monitors the average line to line RMS voltage of an AC bus across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.1.3 AC Bus Average Line-Neutral Voltage

Monitors the average line to neutral RMS voltage of an AC bus across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.4 AC Bus Phase A Frequency

Monitors the frequency of phase A of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.5 AC Bus Phase A-Phase B Voltage

Monitors the voltage between Phase A and Phase B of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.1.6 AC Bus Phase A-Neutral Voltage

Monitors the voltage between Phase A and Neutral of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.7 AC Bus Phase B Frequency

Monitors the frequency of phase B of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.8 AC Bus Phase B-Phase C Voltage

Monitors the voltage between Phase B and Phase C of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.1.9 AC Bus Phase B-Neutral Voltage

Monitors the voltage between Phase B and Neutral of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.10 AC Bus Phase C Frequency

Monitors the frequency of phase C of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.1.11 AC Bus Phase C-Phase A Voltage

Monitors the voltage between Phase C and Phase A of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.1.12 AC Bus Phase C-Neutral Voltage

Monitors the voltage between Phase C and Neutral of an AC bus.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: Hertz

Instances: 253

9.4.2 AC Generator

9.4.2.1 AC Generator Average Current

Monitors the average AC RMS current from a generator across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.2.2 AC Generator Average Frequency

Monitors the average frequency of the AC power from a generator across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.2.3 AC Generator Average Line-Line Voltage

Monitors the average line to line RMS voltage of the AC power from a generator across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.2.4 AC Generator Average Line-Neutral Voltage

Monitors the average line to neutral RMS voltage of the AC power from a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.2.5 AC Generator Phase A Apparent Power

Monitors the Apparent Power being sourced from a generator on phase A.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.6 AC Generator Phase A Current

Monitors the AC RMS electrical current being sourced from a generator on phase A.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.7 AC Generator Phase A Frequency

Monitors the frequency of phase A of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.8 AC Generator Phase A-Phase B Voltage

Monitors the RMS voltage between Phase A and Phase B of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.9 AC Generator Phase A-Neutral Voltage

Monitors the RMS voltage between Phase A and neutral of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.10 AC Generator Phase A Power Factor

Monitors the Power Factor of Phase A of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.11 AC Generator Phase A Reactive Power

Monitors the Reactive Power on Phase A of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.12 AC Generator Phase A Real Power

Monitors the Real Power on Phase A of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.13 AC Generator Phase B Apparent Power

Monitors the Apparent Power being sourced from a generator on phase B.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.14 AC Generator Phase B Current

Monitors the AC RMS electrical current being sourced from a generator on phase B.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.15 AC Generator Phase B Frequency

Monitors the frequency of phase B of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.16 AC Generator Phase B-Phase C Voltage

Monitors the RMS voltage between Phase B and Phase C of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.17 AC Generator Phase B-Neutral Voltage

Monitors the RMS voltage between Phase B and neutral of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.18 AC Generator Phase B Power Factor

Monitors the Power Factor of Phase B of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.19 AC Generator Phase B Reactive Power

Monitors the Reactive Power on Phase B of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.20 AC Generator Phase B Real Power

Monitors the Real Power on Phase B of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.21 AC Generator Phase C Apparent Power

Monitors the Apparent Power being sourced from a generator on phase C.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.22 AC Generator Phase C Current

Monitors the AC RMS electrical current being sourced from a generator on phase C.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.23 AC Generator Phase C Frequency

Monitors the frequency of phase C of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.24 AC Generator Phase C-Phase A Voltage

Monitors the RMS voltage between Phase C and Phase A of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.25 AC Generator Phase C-Neutral Voltage

Monitors the RMS voltage between Phase C and neutral of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.26 AC Generator Phase C Power Factor

Monitors the Power Factor of Phase C of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.27 AC Generator Phase C Reactive Power

Monitors the Reactive Power on Phase C of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.28 AC Generator Phase C Real Power

Monitors the Real Power on Phase C of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.29 AC Generator Total Apparent Power

Monitors the Total Apparent Power being sourced from a generator on all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.30 AC Generator Total Power Factor

Monitors the Total Power Factor of a generator across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.31 AC Generator Total Reactive Power

Monitors the Total Reactive Power on all phases of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.32 AC Generator Total Real Power

Monitors the Total Real Power on all phases of a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.33 AC Generator Total kWh Export

Monitors the Total kilowatt-hours exported from a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.2.34 AC Generator Total kWh Import

Monitors the Total kilowatt-hours imported to a generator.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3 AC Utility

9.4.3.1 AC Utility Average Current

Monitors the average AC RMS current from a utility across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.3.2 AC Utility Average Frequency

Monitors the average frequency of the AC power from a Utility across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.3.3 AC Utility Average Line-Line Voltage

Monitors the average line to line RMS voltage of the AC power from a Utility across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.3.4 AC Utility Average Line-Neutral Voltage

Monitors the average line to neutral RMS voltage of the AC power from a Utility across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or ACM100

9.4.3.5 AC Utility Phase A Apparent Power

Monitors the Apparent Power being sourced from a Utility on phase A.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.6 AC Utility Phase A Current

Monitors the AC RMS electrical current being sourced from a Utility on phase A.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.7 AC Utility Phase A Frequency

Monitors the frequency of phase A of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.8 AC Utility Phase A-Phase B Voltage

Monitors the RMS voltage between Phase A and Phase B of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.9 AC Utility Phase A-Neutral Voltage

Monitors the RMS voltage between Phase A and neutral of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.10 AC Utility Phase A Power Factor

Monitors the Power Factor of Phase A of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.11 AC Utility Phase A Reactive Power

Monitors the Reactive Power on Phase A of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.12 AC Utility Phase A Real Power

Monitors the Real Power on Phase A of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.13 AC Utility Phase B Apparent Power

Monitors the Apparent Power being sourced from a Utility on phase B.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.14 AC Utility Phase B Current

Monitors the AC RMS electrical current being sourced from a Utility on phase B.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.15 AC Utility Phase B Frequency

Monitors the frequency of phase B of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.16 AC Utility Phase B-Phase C Voltage

Monitors the RMS voltage between Phase B and Phase C of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.17 AC Utility Phase B-Neutral Voltage

Monitors the RMS voltage between Phase B and neutral of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.18 AC Utility Phase B Power Factor

Monitors the Power Factor of Phase B of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.19 AC Utility Phase B Reactive Power

Monitors the Reactive Power on Phase B of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.20 AC Utility Phase B Real Power

Monitors the Real Power on Phase B of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.21 AC Utility Phase C Apparent Power

Monitors the Apparent Power being sourced from a Utility on phase C.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.22 AC Utility Phase C Current

Monitors the AC RMS electrical current being sourced from a Utility on phase C.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.23 AC Utility Phase C Frequency

Monitors the frequency of phase C of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.24 AC Utility Phase C-Phase A Voltage

Monitors the RMS voltage between Phase C and Phase A of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.25 AC Utility Phase C-Neutral Voltage

Monitors the RMS voltage between Phase C and neutral of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.26 AC Utility Phase C Power Factor

Monitors the Power Factor of Phase C of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.27 AC Utility Phase C Reactive Power

Monitors the Reactive Power on Phase C of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.28 AC Utility Phase C Real Power

Monitors the Real Power on Phase C of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.29 AC Utility Total Apparent Power

Monitors the Total Apparent Power being sourced from a Utility on all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.30 AC Utility Total Power Factor

Monitors the Total Power Factor of a Utility across all phases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.31 AC Utility Total Reactive Power

Monitors the Total Reactive Power on all phases of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.32 AC Utility Total Real Power

Monitors the Total Real Power on all phases of a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.33 AC Utility Total kWh Export

Monitors the Total kilowatt-hours exported from a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.3.34 AC Utility Total kWh Import

Monitors the Total kilowatt-hours imported to a Utility.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

9.4.4 Anchor

9.4.4.1 Watch

Monitors the vessel position relative to a preset Latitude and Longitude

Alert Types: Anchor Watch Alert

Instances: 253

9.4.5 DC Power

9.4.5.1 Battery State of Charge

Monitors the current energy in the battery as a percentage of its total capacity

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.5.2 Battery Temperature

Monitors the battery case temperature

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.5.3 Battery Time Remaining

Monitors the time remaining that the battery can continue to operate at its current load

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.5.4 DC Current

Monitors the electrical current being sourced to/from the battery

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.5.5 DC Power

Monitors the DC power currently being provided by the battery

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.5.6 DC Voltage

Monitors the voltage measured at the battery

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DCM100

9.4.6 Depth

9.4.6.1 Water Below Transducer

Monitors the current reading from a depth transducer.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DST100

9.4.6.2 Water Depth

Monitors the current reading from a depth transducer, plus the offset of the depth transducer.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DST100

9.4.7 Electrical Distribution

9.4.7.1 Circuit Breaker

Displays whether the specified breaker is open or closed

Alert Types:	On Alert, Off Alert, Tripped Alert, Data Unavailable Alert
Instances:	253
Switches (Per Instance):	28

9.4.8 Engine

9.4.8.1 Engine Alternator Potential

Monitors the electrical power supply voltage measured at the engine

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.2 Engine Boost Pressure

Monitors the boost pressure of a supercharger or turbocharger.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.3 Engine Exhaust Gas Temperature

Monitors the temperature of the engine's exhaust gases.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: TMP100

9.4.8.4 Engine Fuel Pressure

Monitors the pressure of the fuel for the engine.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.5 Engine Fuel Rate

Monitors the rate of fuel consumption for the engine

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.6 Engine Hours

Monitors the number of hours of operation reported by the engine

Alert Types: High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.7 Engine Oil Pressure

Monitors the engine's oil pressure

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.8 Engine Oil Temperature

Monitors the engine's oil temperature

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.9 Engine Tachometer

Monitors the rotational speed of the engine

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.10 Engine Tilt/Trim

Monitors the tilt or trim of the drive

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.11 Engine Water Pressure

Monitors the engine's water pressure

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.12 Engine Water Temperature

Monitors the engine's water temperature

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.13 Fuel Economy

Monitors the engine's fuel usage

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.14 Percent Engine Load

Monitors the current load on the engine as a percentage of its rated load

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.8.15 Percent Engine Torque

Monitors the current torque being provided by the engine as a percentage of its rated torque

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9 Engine Warning

9.4.9.1 Charge Indicator

Generally indicates a fault in the engine's charging system. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.2 Check Engine

Generally indicates some condition in the engine that requires investigation. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.3 EGR System

Generally indicates a fault in the exhaust gas recirculation (EGR) system. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.4 Engine Comm Error

Generally indicates some condition relative to engine communications that requires investigation. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.5 Engine Cranking

Generally indicates that the starter on the engine is engaged Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.6 Engine Emergency Stop Mode

Generally indicates that the engine was stopped using an emergency stop button. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.7 Engine Shutting Down

Generally indicates that the engine is in the process of shutting down. Please consult the engine manufacturer's documentation for details.

Alert Types:	On Alert, Off Alert, Data Unavailable Alert
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.8 High Boost Pressure

Generally indicates that the supercharger/turbocharger boost pressure has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types:	On Alert, Off Alert, Data Unavailable Alert
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.9 Low Coolant Level

Generally indicates that the level of coolant has fallen below some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types:	On Alert, Off Alert, Data Unavailable Alert
Instances:	253
Maretron Components:	J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.10 Low Fuel Pressure

Generally indicates that the fuel pressure has fallen below some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.11 Low Oil Level

Generally indicates that the oil level has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.12 Low Oil Pressure

Generally indicates that the oil pressure has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.13 Low System Voltage

Generally indicates that the system voltage has fallen below some user-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.14 Maintenance Needed

Generally indicates that the engine is in need of maintenance. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.15 Neutral Start Protect

Generally indicates that the engine will not start because the transmission is not in neutral. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.16 Over Temperature

Generally indicates that the engine's temperature has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.17 Power Reduction

Generally indicates that the engine is operating in a reduced-power mode due to some fault condition. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.18 Preheat Indicator

Generally indicates that the cylinder preheaters are active. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.19 Rev Limit Exceeded

Generally indicates that the engine's RPM has exceeded some engine-defined limit. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.20 Sub/Secondary Throttle

Generally indicates that the engine has fallen back to a secondary throttle due to some fault detected in the primary throttle. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.21 Throttle Position Sensor

Generally indicates a fault in the throttle position sensor. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.22 Warning Level 1

Generally indicates some engine-specific warning condition. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.23 Warning Level 2

Generally indicates some engine-specific warning condition. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.24 Water Flow

Generally indicates a lack of water flow in cooling system. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.9.25 Water In Fuel

Generally indicates that water has been detected in the engine's fuel. Please consult the engine manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 or EMS100 (Whether or not this parameter can be displayed depends on the engine configuration. Please consult your engine documentation for details).

9.4.10 Environment

9.4.10.1 Barometer

Monitors the atmospheric (barometric) pressure

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: WSO100

9.4.10.2 Dew Point

Monitors the current dew point based on air temperature and humidity

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Maretron Components: WSO100

9.4.10.3 Heat Index

Monitors the current heat index based on air temperature and humidity

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Source: Inside, Outside

Maretron Components: WSO100

9.4.10.4 Humidity

Monitors the relative humidity

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Source: Inside, Outside

Maretron Components: WSO100

9.4.10.5 Temperature

Monitors the temperature at specified source.

Alert Types:	Low Alert, High Alert, Data Unavailable Alert
Instances:	253
Source:	Sea, Outside, Inside, Engine Room, Main Cabin, Live Well, Bait Well, Refrigeration, Heating System, Dew Point, Wind Chill, Apparent, Wind Chill, Theoretical, Heat Index, Freezer
Maretron Components:	WSO100, TMP100

9.4.10.6 Wind Chill

Monitors the current wind chill based on outside air temperature and wind speed

Alert Types:	Low Alert, High Alert, Data Unavailable Alert
Maretron Components:	WSO100

9.4.11 Fuel Management

WARNING: While Maretron fuel management products are designed to accurate and reliable, they should be used only as aids for fuel management and not as a replacement for traditional fuel management techniques.

BEWARE: Conditions can quickly change that drastically affect time and distances to empty!

NOTE: Fuel Management is operational only in the Platinum Edition software. In the Standard Edition software, you may create fuel management components, but they will display "Not Licensed" instead of data values.

The Distance to Empty and Time to Empty measurements are calculated based on the conditions that are prevalent at the time. Changes in wind and current can drastically change the Distance to Empty and Time to Empty measurements that N2KView calculates and displays.

For example, if you are motoring 100 miles out to sea with the current, at the end of the 100 miles, N2KView might display that you have 120 miles before you run out of fuel. If you then turn around and start heading back to land, this time against the current, the Distance to Empty reading may change to 80 miles.

Therefore, you must always keep in mind the direction and speed of prevailing winds and currents. You must always remain aware that N2KView makes Distance to Empty and Time to Empty calculations assuming that your course and speed, and the prevailing winds and currents, and any other factors that may affect fuel consumption will not change.

Because of these extremely important considerations of which you must be aware before using the fuel management features of N2KView, the "**Fuel Management Warning**" screen is displayed on the following occasions: 1) every time you create a component in the fuel management category, and 2) the first time after starting N2KView that you open a favorites page containing a fuel management component.

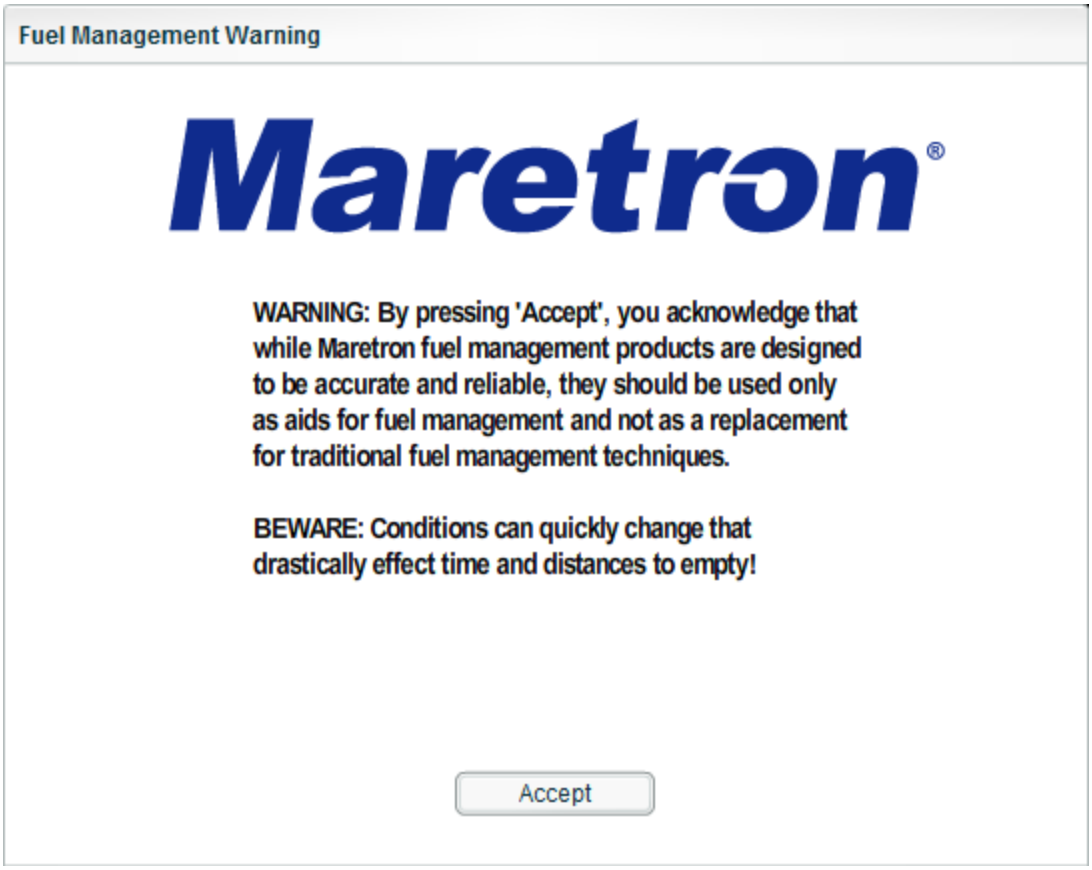

Fuel Management Warning
Maretron
WARNING: By pressing 'Accept', you acknowledge that while Maretron fuel management products are designed to be accurate and reliable, they should be used only as aids for fuel management and not as a replacement for traditional fuel management techniques.
BEWARE: Conditions can quickly change that drastically effect time and distances to empty!
Accept

Figure 100 – Fuel Management Warning Screen

9.4.11.1 Distance To Empty

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Monitors the distance before the selected engines use all fuel in the selected fuel tanks assuming that all factors affecting fuel consumption remain constant.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: kilometers, nautical miles, statute miles

Maretron Components: J2K100 or EMS100, TLA100, and GPS100

9.4.11.2 Engine Total Fuel Rate

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Monitors the total of the fuel consumption per unit time of all selected engines.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: imp gal/hour, liter/hour, gal/hour

Maretron Components: J2K100

9.4.11.3 Time to Empty

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Monitors the time before the selected engines use all fuel in the selected fuel tanks assuming that all factors affecting fuel consumption remain constant.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: hours

Maretron Components: J2K100 or EMS100, and TLA100

9.4.11.4 Total Fuel Economy

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Monitors the distance traveled per unit of fuel consumed by all selected engines.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: kilometers/imp gal, kilometers/liter, kilometers/gal, nautical miles/imp gal, nautical miles/liter, nautical miles/gal, statute miles/imp gal, statute miles/liter, statute miles/gal

Maretron Components: J2K100

9.4.11.5 Total Fuel Remaining

NOTE: This function is fully operational only on the Platinum Edition software. In the Standard Edition software, components will display "Not Licensed" instead of data values.

Monitors the total amount of fuel remaining in all selected fuel tanks.

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Units: imp gal, liter, gal

Maretron Components: TLA100

9.4.12 GPS

9.4.12.1 COG

Monitors the current course over ground

Alert Types: Course Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.12.2 GPS Status

Monitors the current operating mode and status of the currently selected GPS received (please see Section 8.5.14 on page 109 for more details)

Alert Types: GPS Quality Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.12.3 Lat/Lon

Monitors the current latitude and longitude of the vessel

Alert Types: Inside Radius Alert, Outside Radius Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.12.4 Speed Over Ground

Monitors the current speed over ground

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.13 Heading

9.4.13.1 Heading

Monitors the current heading of the vessel (the direction the vessel is pointing) relative to true or magnetic north depending on the unit setting of the heading parameter (see Section 8.4.5.2.2 on page 74).

Alert Types: Direction Alert, Data Unavailable Alert

Instances: 253

Maretron Components: SSC200

9.4.13.2 Rate of Turn

Monitors the change in Heading of the vessel

Alert Types: High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: SSC200

9.4.13.3 Variation

Monitors the compass variation (Angle between True North and Magnetic North).

Alert Types: Data Unavailable Alert

Instances: 253

Maretron Components: SSC200

9.4.14 Indicator

9.4.14.1 Status

Monitors the status of a switch on the system.

Alert Types:	On Alert, Off Alert, Error Alert, Data Unavailable Alert
Instances:	253
Switches (Per Instance):	28
Maretron Components:	SIM100, RIM100

9.4.15 Navigation

N2KView is not a primary navigator; that is, it does not provide means for entering and storing waypoint and route data. N2KView can receive information on the current leg of the voyage from a primary navigation device (such as a chart plotter or PC with navigation software and NMEA 2000 interface) and display the following information:

9.4.15.1 Bearing Origin to Destination

Monitors the direction from the origin waypoint to the destination waypoint

Alert Types: Direction Alert, Data Unavailable Alert

9.4.15.2 Bearing to Waypoint

Monitors the bearing to the destination waypoint

Alert Types: Direction Alert, Data Unavailable Alert

9.4.15.3 COG

Monitors the current course over ground

Alert Types: Course Alert, Data Unavailable Alert

Instances: 253

Maretron Components: SSC200

9.4.15.4 Cross Track Error

Monitors the cross-track error (minimum distance from the boat to the programmed route)

Alert Types: High Alert, Data Unavailable Alert

Units: kilometers, nautical miles, statute miles

9.4.15.5 Distance to Waypoint?? No Alert Defined??

Monitors the distance to the destination waypoint

Component Types: Digital

Units: kilometers, nautical miles, statute miles

9.4.15.6 Lat/Lon

Monitors the current latitude and longitude of the vessel

Alert Types: Inside Radius Alert, Outside Radius Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.15.7 Speed Over Ground

Monitors the current speed over ground of the vessel

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.15.8 Time to Go

Monitors the estimated time remaining until arrival at the destination waypoint assuming current speed and course remain constant

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.15.9 VMG to Waypoint

Monitors the speed at which the distance to the waypoint is decreasing

Alert Types: Low Alert, High Alert, Data Unavailable Alert

9.4.16 Rudder

9.4.16.1 Rudder Angle

Monitors the angle of the vessel's rudder as indicated by the rudder sensor

Alert Types:	High Alert, Data Unavailable Alert
Units:	degrees
Instances:	4
Maretron Components:	RAA100

9.4.17 Speed/Distance

9.4.17.1 Speed Over Ground

Monitors the speed over ground of the vessel (relative to the earth, not the water)

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: GPS100

9.4.17.2 Speed Through Water

Monitors the speed of the boat relative to the water

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: DST100

9.4.17.3 Total Log

Monitors the total distance traveled by the vessel since the log indicator was installed

Alert Types: High Alert, Data Unavailable Alert

Maretron Components: DST100

9.4.17.4 Trip Log

Monitors the distance traveled by the vessel since the trip indication of the log indicator was last reset

Alert Types: High Alert, Data Unavailable Alert

Maretron Components: DST100

9.4.18 Tank

9.4.18.1 Tank Level

Monitors the level of fluid in the tank as a percentage of its capacity

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

9.4.18.2 Tank Remaining

Monitors the amount of fluid in the tank

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Instances: 16

Maretron Components: TLA100

9.4.18.3 Total Tank Level

Monitors the level of fluid in all selected tanks as a percentage of their total capacity

Alert Types: Low Alert, High Alert, NO Data Unavailable Alert?

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Maretron Components: TLA100

9.4.18.4 Total Tank Remaining

Monitors the total amount of fluid in all of the selected tanks

Alert Types: Low Alert, High Alert, NO Data Unavailable Alert?

Source: Fuel, Fresh Water, Waste Water, Live Well, Oil, Black Water

Maretron Components: TLA100

9.4.19 Time/Date

9.4.19.1 Time

Enables the setting of an alarm clock in any time zone.

Alert Types: Timer Alert

Maretron Components: GPS100

9.4.20 Transmission

9.4.20.1 Transmission Oil Pressure

Monitors the pressure of the oil in the transmission

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.20.2 Transmission Oil Temperature

Monitors the temperature of the oil in the transmission

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.21 Transmission Warning

9.4.21.1 Check Transmission

Generally indicates some fault condition in the transmission that requires attention. Please consult the transmission manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.21.2 Low Oil Level

Generally indicates that the oil level in the transmission has fallen below some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.21.3 Low Oil Pressure

Generally indicates that the oil pressure in the transmission has fallen below some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Alert Types: On Alert, Off Alert, Data Unavailable Alert

Instances: 253

Maretron Components: J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.21.4 Over Temperature

Generally indicates that the operating temperature of the transmission exceeds some transmission-defined limit. Please consult the transmission manufacturer's documentation for details.

Alert Types:	On Alert, Off Alert, Data Unavailable Alert
Instances:	253
Maretron Components:	J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.21.5 Sail Drive

Generally indicates that the sail driver mode in the transmission has been activated. Please consult the transmission manufacturer's documentation for details.

Alert Types:	On Alert, Off Alert, Data Unavailable Alert
Instances:	253
Maretron Components:	J2K100 (Whether or not this parameter can be displayed depends on the transmission configuration. Please consult your transmission documentation for details).

9.4.22 Vessel

9.4.22.1 Pitch

Monitors the pitch of the vessel (rotation about the horizontal axis perpendicular to the ship's keel)

Alert Types: High Alert, Data Unavailable Alert

Maretron Components: SSC200

9.4.22.2 Roll

Monitors the roll of the vessel (rotation about the horizontal axis parallel to the ship's keel)

Alert Types: High Alert, Data Unavailable Alert

Instances: 253

Maretron Components: SSC200

9.4.22.3 Trim Tabs

Monitors the position of the vessel's trim tabs

Alert Types: Low Alert, High Alert, Data Unavailable Alert

Source: Port, Starboard

9.4.23 Wind

There are several different types of wind measurements. They are described in section 8.6.25.

9.4.23.1 Wind Direction

Alert Types: Direction Alert, Data Unavailable Alert

References: Apparent, Ground, True

Instances: 253

Maretron Components (Apparent): WSO100

Maretron Components (Ground): WSO100 and GPS100 and SSC200

Maretron Components (True, Water Referenced): WSO100 and DST100

Maretron Components (True, Ground Referenced): WSO100 and GPS100 and SSC200

9.4.23.2 Wind Speed

References: Apparent, Ground, True

Alert Types: Low Alert, High Alert, Data Unavailable Alert

References: Apparent, Ground, True

Instances: 253

Maretron Components (Apparent): WSO100

Maretron Components (Ground): WSO100, GPS100 and SSC200

Maretron Components (True, Water Referenced): WSO100 and DST100

Maretron Components (True, Ground Referenced): WSO100 and GPS100 and SSC200

10 Video and Cameras

N2KView Platinum version 2.5 introduces a video component that may be used to monitor cameras connected to the N2KView computer using the ship's Ethernet network. The NMEA2000 bus is not used to transfer the camera video streams or to control the cameras.

Having the video display embedded within N2KView has the advantage that the user can see the video and the gauges simultaneously, and all the N2KView Alert monitoring is active, with the active alerts always visible at the bottom of the screen.

The following IP cameras have been tested with N2KView.

- AXIS 209FD-R: This is a small rugged indoor camera that receives its power over the Ethernet connection.
- AXIS 215 PTZ: This is a powerful camera with full pan, tilt and zoom (PTZ) capabilities that operates off 12V

In addition, analog cameras may be connected to an Axis video server, which is then connected to the N2KView computer using Ethernet.

- AXIS 241S: This is a Single Channel Encoder (Used to convert analog camera (NTSC, PAL) to Internet Protocol (IP))
- AXIS 241Q: This is a Four Channel Encoder.

Finally, a USB camera may be connected directly to the computer, although this has limitations. (1)The USB camera must be located close to the computer due to the limitation on the cable length. (2)The image from the USB camera will only be available on one screen, and may not be transmitted to another computer.

10.1 Camera Setup

Before the cameras can be accessed from the Screen Setup, they must be entered into N2KView in the Camera Setup Screen. This screen is entered by selecting the **Cameras Setup** tab on the right of the main screen.

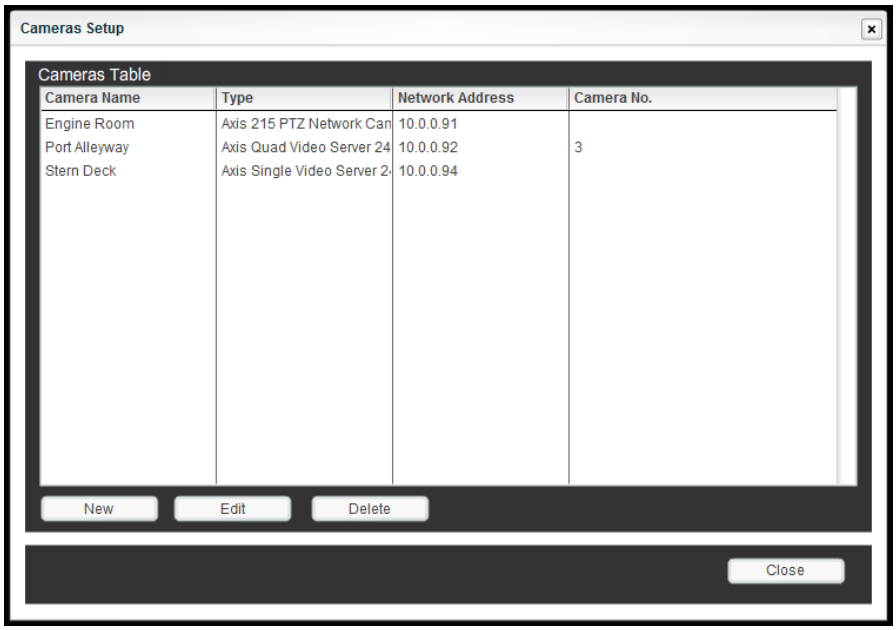


Figure 101 – Camera Setup Dialog

The Camera Editor Dialog is entered either be pressing “New” or by selecting an existing camera from the list in the Cameras Setup Screen and pressing “Edit”. Once in the Camera Editor dialog, select the type of camera from the Type Drop Down List.

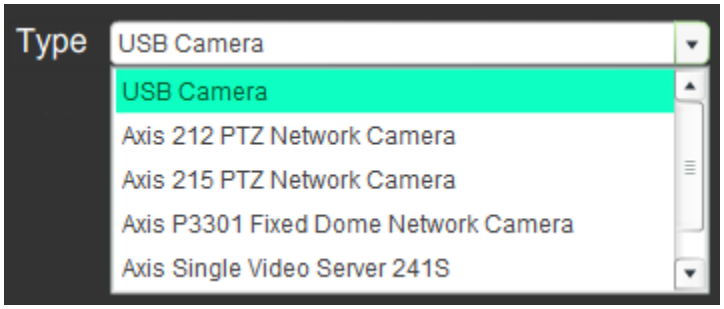


Figure 102 – Camera Type Drop Down List

Scroll up and down to see all the choices.

10.1.1 USB Camera Setup

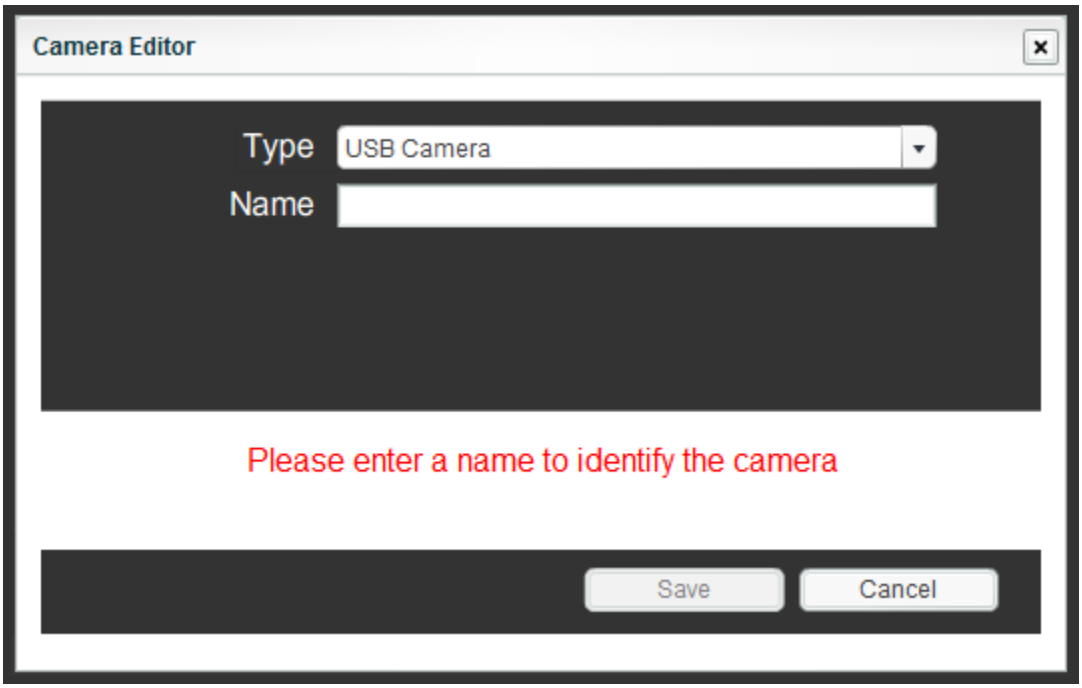


Figure 103 – USB Camera Edit Dialog

The only requirement when setting up a USB camera is to enter a name to identify the camera. The white area of the dialog is used to convey warning messages to the user. While these warning messages are present, the Save button will be disabled.

10.1.2 IP Camera Setup / Single Video Server Setup

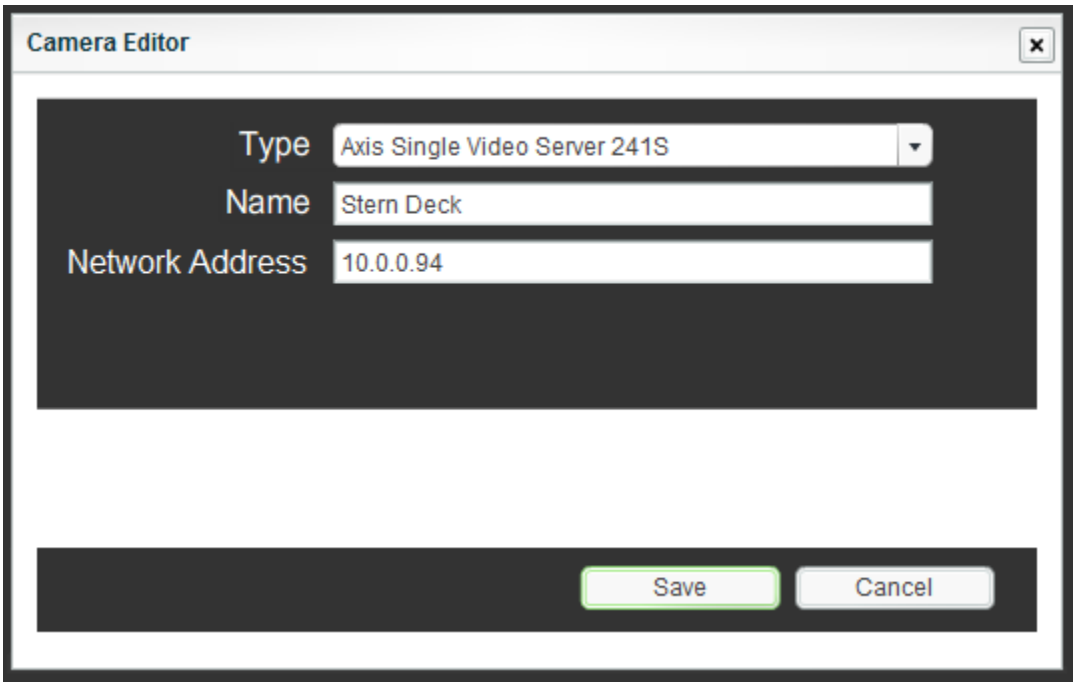


Figure 104 – IP Camera Edit Dialog

For an IP camera or a single channel Video Server, the Network address (IP address) of the camera or server must be entered.

10.1.3 Quad Video Server Setup

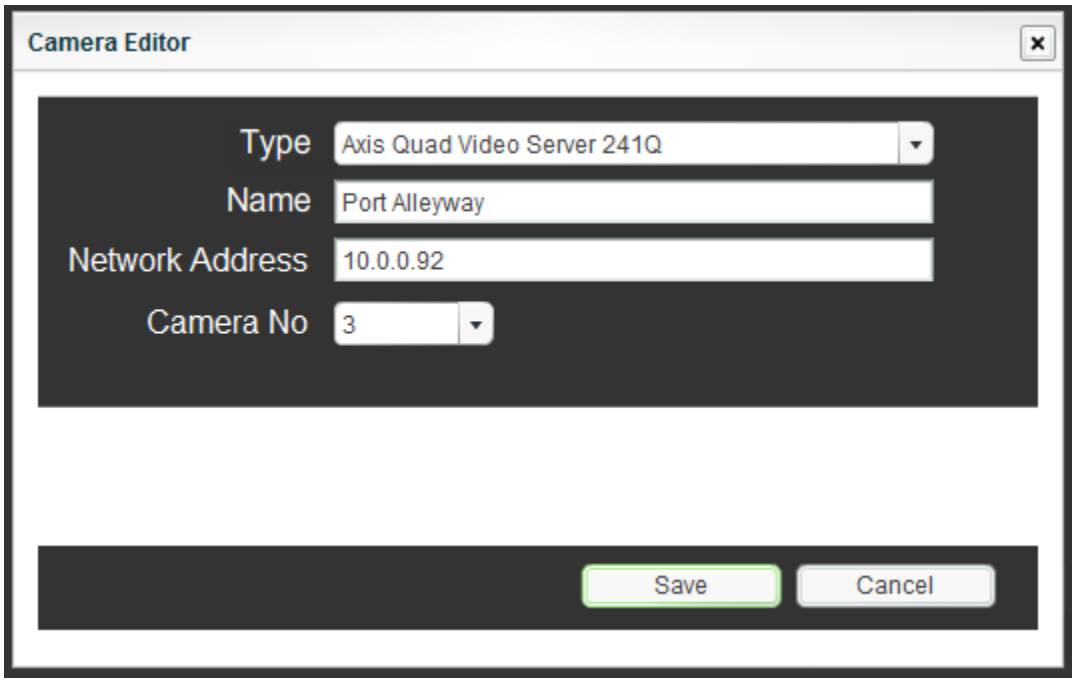


Figure 105 – Quad Video Server Edit Dialog

When setting up an analog camera attached to the quad video server, the channel number is chosen from a drop down list, in addition to the name and IP address.

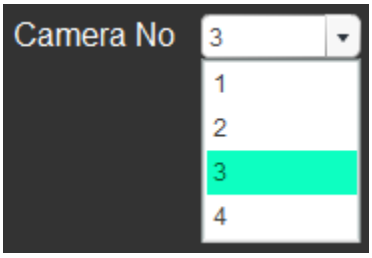


Figure 106 – Camera Number Selection

11 N2KServer

This section describes the operation of the N2KServer server component of the N2KView Vessel Control and Monitoring System.

11.1 N2KServer Components

N2KServer is not a single program, but consists of two components: 1) a Windows service to receive the data from the NMEA 2000 network, buffer it, and transmit it to clients over the TCP/IP network connection, and 2) a user program to configure and control the Windows service.

11.1.1 N2KServer Windows Service

The main component of N2KServer is the N2KServer Windows Service. This program can automatically be started when Windows starts (see Section 11.1.2 for details). If the N2KServer Windows Service fails for any reason, Windows will automatically re-start it. This ensures maximum reliability and availability of data. The N2KServer Windows Service will write status and log messages to the Windows Event Log, under the "Application" category. If you have any problems with the N2KServer Windows Service, You can use the Windows Event Viewer (located under the Control Panel, under the Administrative Tools category), to check for any error messages that the N2KServer Windows Service may write there).

11.1.2 N2KServer Service Manager

The N2KServer Service Manager is used to stop, start, and configure the N2KServer Windows Service. Since this program interacts with a Windows service, it must be run under an account that has administrative privileges on the Windows system. The N2KServer Service Manager window has the following sections:

"**Start**" button – used to start the N2KServer Windows Service. If the N2KServer is running, this button is grayed out and unavailable.

"**Stop**" button – used to stop the N2KServer Windows Service. If the N2KServer is not running, this button is grayed out and unavailable.

General:

- **N2KServer Status** – this will show "Running" when the N2KServer Windows service is running, and "Stopped" when the N2KServer Windows service is stopped.

- **Serial Number** – this will show the serial number of the software, as received from the Hardware License Key.

- **Platinum Licenses** – this will show the number of Platinum Licenses that are present on the Hardware License Key.

- **Standard Licenses** – this will show the number of Standard Licenses that are present on the Hardware License Key.

Statistics:

- **Number of Client Connections** – this shows the number of N2KView clients currently connected to the N2KServer.

- **Messages Transmitted** – this shows the total number of NMEA 2000 messages transmitted to the connected clients since the N2KServer was last started.

- **Messages Received** – this shows the total number of messages received from N2KView clients since the N2KServer was last started. The "**Start**" button is used to start the N2KServer, and the "**Stop**" button is used to stop the N2KServer.

NMEA 2000 Data Selection:

- **Simulated Data** – this radio button can be selected or deselected only when the N2KServer is stopped. When this radio button is selected, the N2KServer will output a selection of simulated NMEA 2000 messages that are sufficient to populated the favorite screens that are in the configuration file that is shipped with the N2KView client. This selection should be used only for demonstration or testing purposes.

- **Live Network Data** – this radio button can be selected or deselected only when the N2KServer is stopped. When this radio button is selected, the N2KServer will output data from the NMEA 2000 gateway which is selected in the "**Gateway Serial Port**" dropdown list. This radio button should be selected for normal operation.

- **Gateway Serial Port** – This dropdown selection box can be selected or deselected only when the N2KServer is stopped. When N2KServer is running, this box shows the identity of the NMEA 2000 gateway that the N2KServer is using to connect to the NMEA 2000 network. When N2KServer is stopped, you may select a gateway from the list for the N2KServer to use the next time it is started. If this list is empty, then either 1) you have no gateways connected to the computer and to a powered up NMEA 2000 bus, or 2) all connected gateways are in use by other programs (a NMEA 2000 gateway can be used by only one program at a time)..

Automatic Startup:

- **Start N2KServer When Windows Starts** – this checkbox can be checked or unchecked only when the N2KServer is stopped. If this checkbox is checked, then the N2KServer will be started automatically after Windows is restarted, regardless of whether or not anyone is logged into Windows. If this checkbox is cleared, then N2KServer will not start automatically. You must manually start the N2KServer Service Manager and click the *Start* button in order to start the N2KServer.

Security:

- **Server Password** – this textbox can by typed into only when the N2KServer is stopped. Choose a password and enter it into this textbox to set the server password for N2KServer. No N2KView clients will be allowed to connect to this N2KServer unless they have the matching password set via N2KView's **"Connection"** dialog box. Once you have typed the desired password into the Server Password textbox, press the "**Set**" button to cause the text to be set as the server password for N2KServer.

- **Set** – this button can be pressed only when the N2KServer is stopped. When you press this button, the text that has been typed into the "**Server Password**" textbox will be set as the server password for N2KServer.

11.1.3 Minimizing N2KServer Service Manager

To minimize N2KServer Service Manager to the system tray, click on the minimize button (with a straight horizontal line in the bottom of the button), third from the right in the group of system buttons in the extreme upper right hand corner of the window, at the right edge of the Windows title bar.

11.1.4 Terminating N2KServer Service Manager

To terminate the N2KServer Service Manager, click on the red "**X**" in the extreme upper right hand corner of the window, at the right edge of the Windows title bar.

You may also terminate N2KServer Service Manager using the "**Alt-F4"** key combination when N2KServer Service Manager is the active window.

In either case, the N2KView Service Manager will terminate, but the N2KServer Windows Service will continue to run if it is running when the Service Manager is terminated.

11.1.5 Security and User Accounts

The N2KServer program runs as a Windows service. This ensures that the program can start when Windows starts; that is, no one needs to log into the computer to start N2KServer, if N2KServer has been configured to start when Windows starts. Since N2KServer is a Windows service and the N2KServer Service Manager interacts with this service, the N2KServer Service Manager must be run from a Windows account with administrator privileges. This is a restriction of the Microsoft Windows security architecture.

12 Troubleshooting

If you notice unexpected operation of the Maretron N2KView System, follow the troubleshooting procedures in this section to remedy simple problems.

Symptom	Troubleshooting Procedure
No data on the N2KView screen (all components display dashes for the data value and gauge indicators are at the end stop (peg))	Select the Connections tab and open the Connections window. Press the *Connect* button, and look at the *Connection Status:* message for suggestions as to how to solve the problem. Make sure that N2KServer is running on the computer whose Host address is specified in the Connections window. You can confirm this using N2KServer Service Manager. Make sure that the NMEA 2000 gateway on the N2KServer computer is plugged into a powered-on NMEA 2000 network and to a USB port on the N2KServer computer, and is not being accessed by another program. You can confirm this by stopping the N2KServer service and making sure that the NMEA 2000 gateway you are using to interface to the NMEA 2000 network appears in the *Gateway Serial Port* list in the N2MServer Service Manager. Make sure that the IP address of the computer running N2KServer is entered into the *Server IP Address* textbox on the *Connection* page of the N2KView client. Make sure that the *Server Port Number* textbox of the *Connection* page of the N2KView client has the value 6544 in it. Make sure that the value entered into the *Enter the Encryption Password* textbox on the *Connection* page of the N2KView client matches the value entered into the *Server Password* textbox of N2KServer Service manager. Make sure that the IP address of the N2KServer computer is accessible from the computer running the N2KView client. You can verify this by

Symptom	Troubleshooting Procedure
	opening a command prompt in Windows (go to the *Start* menu, then select *Accessories*, and then click on *Command Prompt*). In the command propt window that enters, type "telnet <*ip_address*> 6544". If this connection succeeds, you will see just a blank screen with a flashing cursor, and you have confirmed the IP address is visible. If the connection fails with a message sich as "Count not open connection to the host, on port 6544: Connect Failed", then the IP address is not visible and you should try the remedies that follow in this list or consult a networking expert. Make sure that any firewall software on the N2KServer computer is configured to allow incoming connections on port 6544. Make sure that any routers between the N2KServer and the internet are configured to forward incoming connections on port 6544 to the N2KServer computer.
Only certain digital components display dashes for data or certain gauge indicators are at the end stop (peg)	Make sure that you have the proper transducers on the NMEA 2000 network and that the transducers are properly programmed with the right source type and instance number (if applicable) Check the Windows Event Log, Applications Log section for any warning or error messages that N2KServer Windows Service may have written there.
N2KServer reports that the version of firmware in the USB100 is not high enough to run N2KServer.	Contact Maretron to receive a firmware upgrade for your USB100.
N2KView works correctly for a period of time, but sometimes stops displaying data (all digital components display dashes for data and gauge component indicators are at the end stop (or peg)).	Select the Connections tab and open the Connections window. Press the *Connect* button, and look at the *Connection Status:* message for suggestions as to how to solve the problem. Check that the N2KServer Windows Service is still running by using the N2KServer Service Manager. Check that the N2KServer computer is powered on.

Symptom	Troubleshooting Procedure
	Check that the NMEA 2000 network connected to the N2KServer computer is powered on. Check to make sure you are running the most recent version of the Maretron USB100 gateway device driver. Open Windows Device Manager, select the "Ports (COM & LPT) menu, double click on the "Maretron NMEA 2000 Gateway", select the "Driver" tab, and finally click on the "Update Driver" button and follow the instructions in the Update Driver Wizard that appears.
N2KServer Service Manager reports an error starting or stopping the Windows Service when you try to stop or start the N2KServer Windows Service	Ensure that you are running the N2KServer Service Manager from a Windows account that has administrative rights to the N2KServer computer.
The N2KServer computer does not have an N2KServer hardware key, and you keep seeing textboxes warning you that N2KServer cannot find the red N2KServer hardware license key.	Ensure that the requested red N2KServer hardware license key is installed. If you do not have the hardware license key, open N2KServer Service Manager and uncheck the "Start N2KServer When Windows Starts" checkbox.
When you press the switch actuator component, the switch does not change state. Fuel Management components display "Not Licensed" instead of a numeric value.	Switch Actuator and Fuel Management components are only fully operational with a Platinum Edition license. If you wish to use these features, please ensure that you have purchased Platinum Edition licenses for both N2KView and N2KServer and that you have specified the Platinum Edition features in the "Connection" screen.

If these steps do not solve your problem, please contact Maretron Technical Support (refer to Section 13 for contact information).

13 Technical Support

If you require technical support for Maretron products, you can reach us in any of the following ways:

Telephone:	+1-866-550-9100
Fax:	+1-602-861-1777
E-mail:	support@maretron.com
World Wide Web:	http://www.maretron.com
Mail:	Maretron, LLP Attn: Technical Support 9014 N. 23rd Ave Suite 10 Phoenix, AZ 85021 USA

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15 Example of Setting up the AXIS Quad Video Server 241Q

Please read the installation manual that came with your video server. This chapter should not be considered a substitute for reading the Axis documentation.

15.1 Install the AXIS Camera Manager

a. Insert the disk supplied with the video server into the computer and navigate to the Axis Camera Management Setup program. If the autorun feature of the CD does not work, the setup program can be found at <cd drive>:\AutoPlay\Software\ACMSetup.exe.

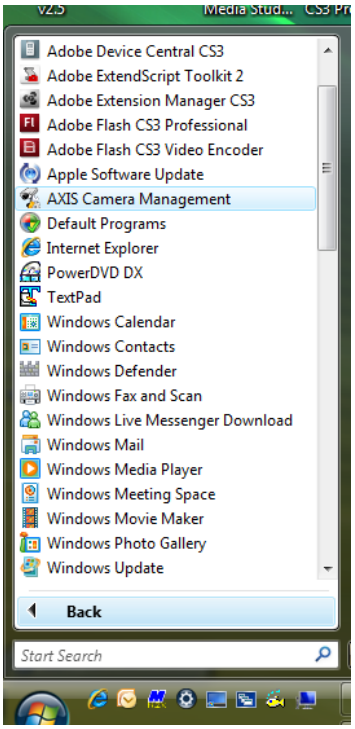
Setup - AXIS Camera Management
Welcome to the AXIS Camera Management Setup Wizard
This will install AXIS Camera Management 2.00 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

b. Continue to press “next” until the installation is complete, and then press “Finish”.

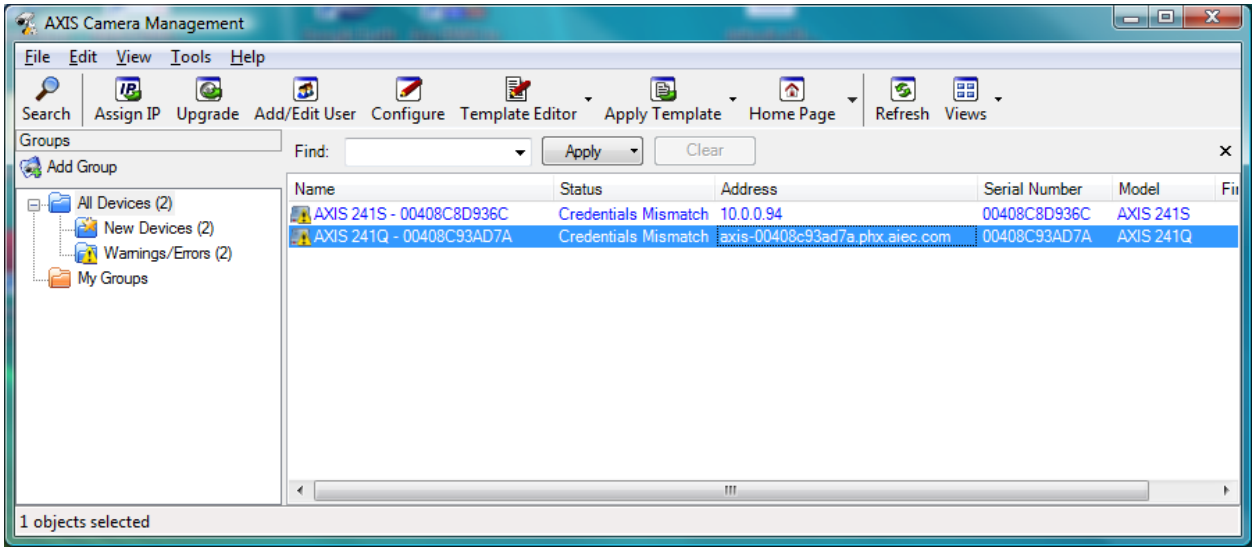
c. Connect the camera to the server, and the server to the network, and connect their respective power supplies.

15.2 Configure the camera

a. Start the AXIS Camera Management Tool, by selecting it in the list of **All Programs** under the Windows Start menu.



b. The resulting screen will show the cameras on the network that have been detected. In this case, two video servers were found in the network. Note the address allocated to the server, you will need to enter it in the Camera Editor of N2KView. This can either be the IP address (10.0.0.94) or the camera's name if the address is provided dynamically from a DNS Server (axis-00408c93ad7a.phx.aiec.com).



c. Double click on the name “Axis 241Q” to log on to the video server. You will be prompted for a username and password. The default username is “root” and the default password “pass”.

d. The camera will provide the following web page to your default browser.

Basic Configuration/Basic Configuration - AXIS 241Q Video Server - Mozilla Firefox
File Edit View History Bookmarks Yahoo! Tools Help
http://10.0.0.92/operator/basic.shtml
Most Visited Getting Started Latest Headlines
Search Web Mail Shopping
AXIS 241Q Video Server
Live View | Setup | Help
Basic Configuration
Instructions
1. Users
2. TCP/IP
3. Date & Time
4. Video & Image
Video & Image
Live View Config
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Basic Configuration
Before using the AXIS 241Q Video Server, there are certain settings that should be made, most of which require Administrator access privileges. To quickly access these settings, use the numbered shortcuts to the left. All the settings are also available from the standard setup links in the menu.
Note that the only required setting is the IP address, which is set on the TCP/IP page. All other settings are optional. Please see the online help for more information.
Firmware version: 4.40.2
MAC address: 00:40:8C:93:AD:7A
Done

e. Set the following parameters in the Users Page. Note that after setting the parameters, you will need to press the **Save** button at the bottom of the page.

   i. Enable anonymous login

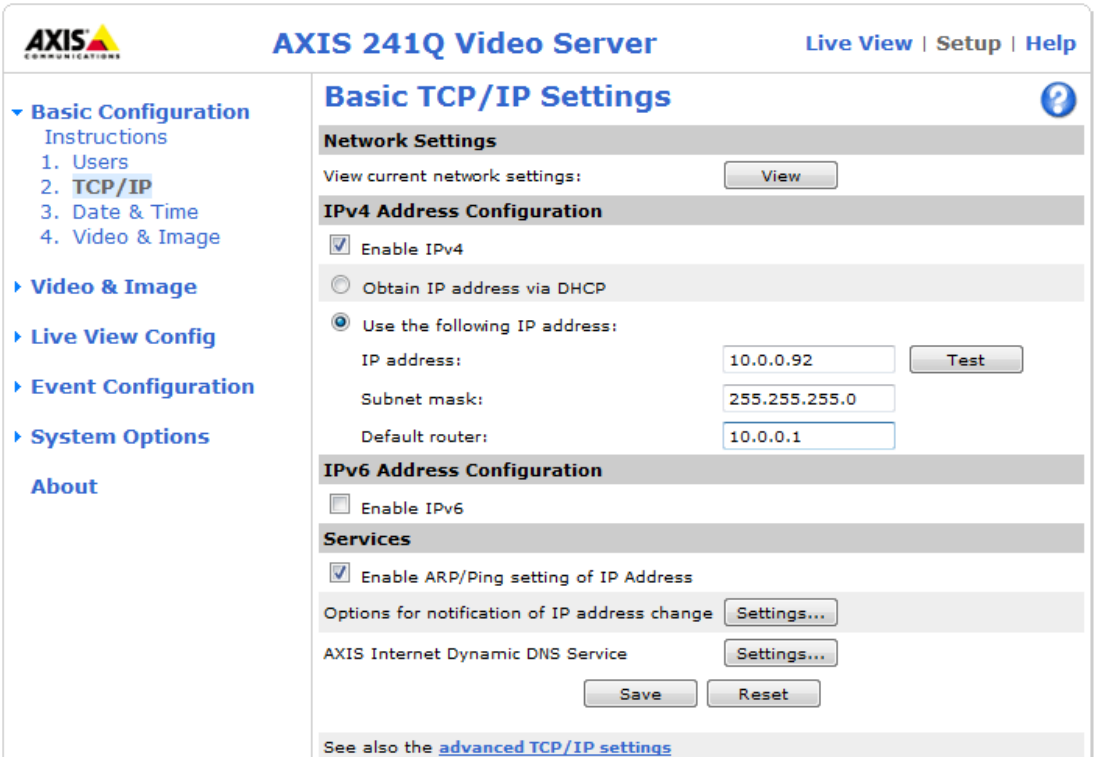
   ii. Enable anonymous PTZ control login

f. Set the following parameters in the TCP/IP Page. In this example, we are hard-coding the IP Address, which is suitable for a simple network. If you have a router (e.g. a wireless router) connected to your network, then choose the option **Obtain IP address via DHCP**. Note that after setting the parameters, you will need to press the **Save** button at the bottom of the page.

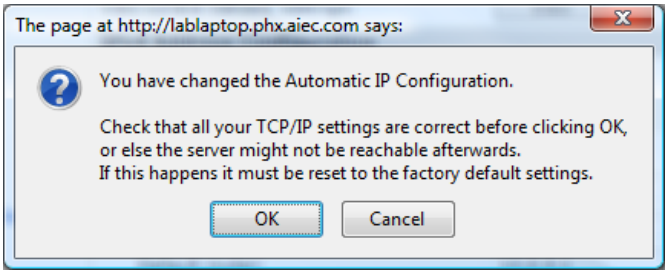
iii. Set the IP Address to **x.y.z.a** where the IP Address (x.y.z.a) is compatible with the addressing mechanism of your network. If none of this makes any sense to you, contact the person who installed / maintains your network.

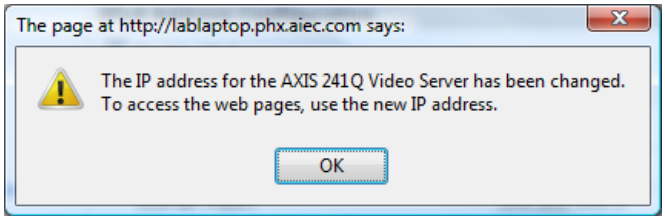
iv. Set the Subnet Mask to **255.255.255.0**

v. Set the Default Router to **x.y.z.1**

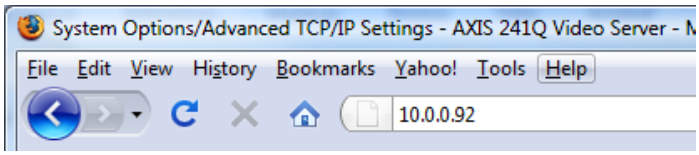


g. Pressing **Save** will change the address on the server, and will require you to log on again at the new address. You get the following warnings…

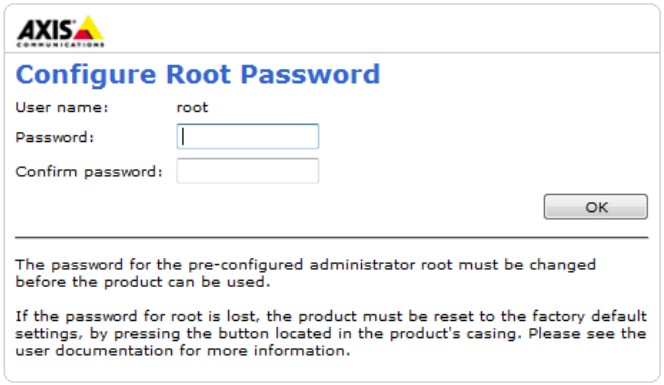

The page at http://lablaptop.phx.aiec.com says:
You have changed the Automatic IP Configuration.
Check that all your TCP/IP settings are correct before clicking OK,
or else the server might not be reachable afterwards.
If this happens it must be reset to the factory default settings.
OK
Cancel


The page at http://lablaptop.phx.aiec.com says:
The IP address for the AXIS 241Q Video Server has been changed.
To access the web pages, use the new IP address.
OK

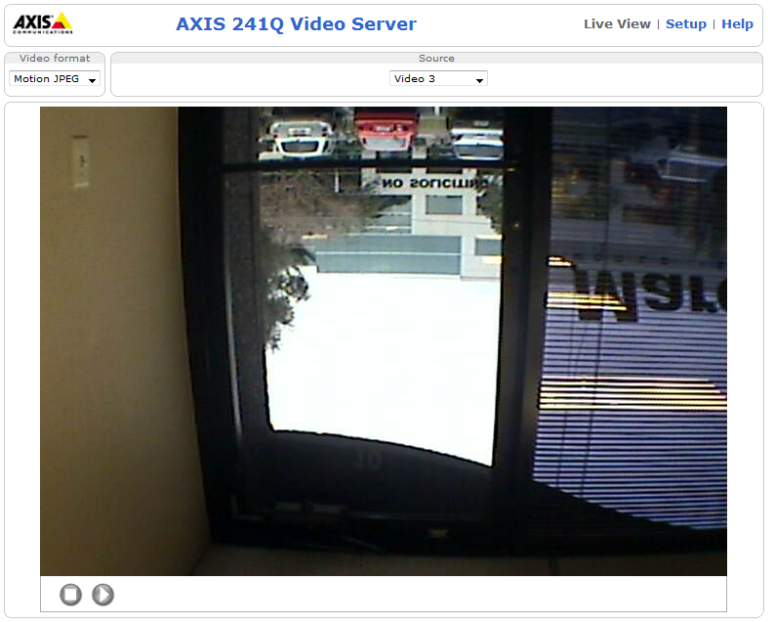
h. After pressing OK, enter the IP address that you chose in the address field at the top of the page


System Options/Advanced TCP/IP Settings - AXIS 241Q Video Server - M
File Edit View History Bookmarks Yahoo! Tools Help
10.0.0.92

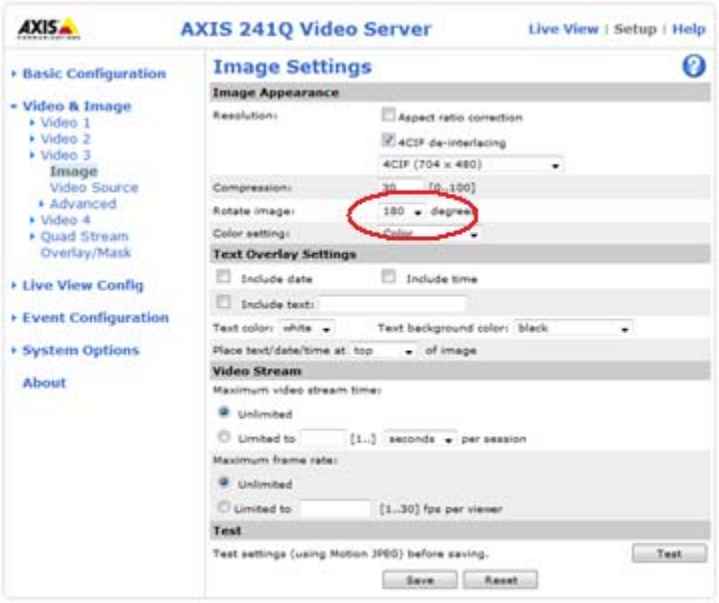
The following screen will ask you to select your own password for root (it was "**pass"**), but now you will select your own. If you forget this password, you will still be able to see the video, but will not be able to change any of the camera configuration parameters. The server can be reset to factory defaults by pressing the recessed button on the front panel, but then you will need to redo this whole procedure.


AXIS
Configure Root Password
User name: root
Password:
Confirm password:
OK
The password for the pre-configured administrator root must be changed before the product can be used.
If the password for root is lost, the product must be reset to the factory default settings, by pressing the button located in the product's casing. Please see the user documentation for more information.

Pressing OK will display the video in the default quad steam format. Change the source to match the camera that you are installing.

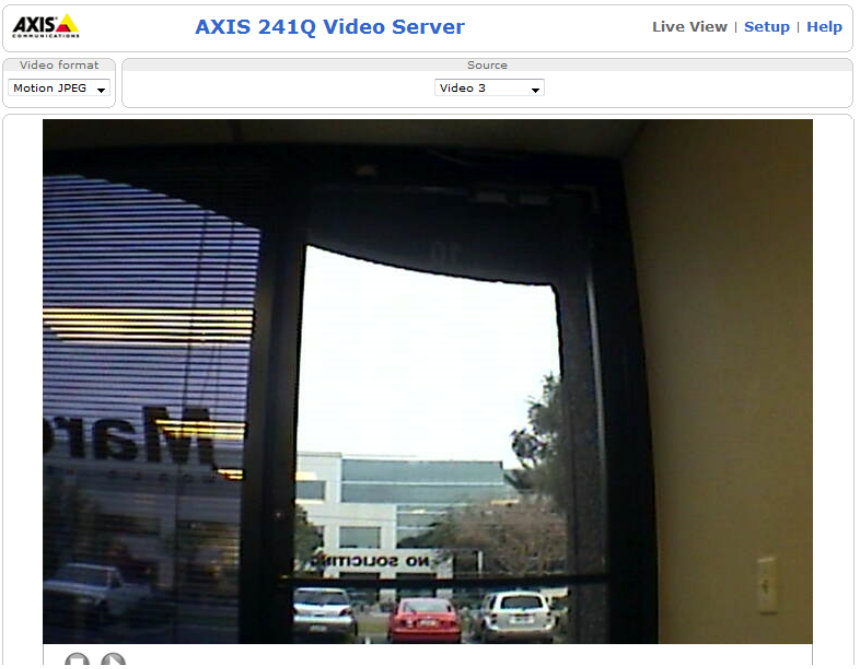


i. If required rotate the picture in the image page by clicking on **Setup** at the top of the screen, then **Video and Image** on the left, and navigate down to the **Image** menu under the camera number of your choice. Remember to press **Save** after selection the correct rotation.



j. Test that you can see the video by selecting **Live View** at the top of the page..

If you are requested to install the Axis Media Control Plugin, do so. Set the Source to match the input to which you have connected your camera on the server. You may need to change the Video Format to Motion JPEG to see a picture.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Source
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